BIOLOGY NMDCAT

VARIATIONS AND GENETICS / INHERITANCE

Q.1 The sequence of nucleotides that determines the amino acid sequence of a protein is called:
A. Gamete
B. Chromatid
C. Chromosome
D. Gene

Q.2 All the genes found in a breeding population at a given time are collectively termed as:
A. Gene frequency
B. Gene cluster
C. Gene operon
D. Gene pool

Q.3 It is the genetic compliment for a particular trait in an individual:
A. Genotype
B. Phenotype
C. Genome
D. Karyotype

Q.4 Organism of pure line is that which produces individuals of
A. Dominant characters
B. Its own character type
C. Recessive characters
D. Intermediate type

Q.5 The organism chosen by G. Mendel to explain the laws of inheritance was:
A. *Homo sapiens*
B. *Arabidopsis thaliana*
C. *Pisum sativum*
D. *Drosophila melanogester*

Q.6 All of the following are recessive phenotypes found in Mendelian experimental plant except:
A. Constricted pod shape
B. Wrinkled seed shape
C. Green pod color
D. Short plant height

Q.7 In Mendel's monohybrid cross, short stem trait becomes recessive in F_1 generation. It will express in F_2 generation only when/in:
A. Alleles expresses co-dominantly
B. Alleles expresses via incomplete dominance
C. Homozygous recessive condition
D. Homozygous dominant condition

Q.8 Mendel's law of segregation was based on the separation of alleles in the garden pea during:
A. Pollination
B. Seed formation
C. Embryonic development
D. Gamete formation

Q.9 Depict the genotypic ratio of the cross between 'Tt × Tt' plants:
A. 3: 1
B. 1:3:3:9
C. 1: 2: 1
D. 9:3:3:1

Q.10 Keeping in view the Mendel's law of segregation, if tall plants were crossed with short heighted plants, then which of the following best describe the F_1 progeny?
A. Homozygous and tall heighted
B. Heterozygous and tall heighted
C. Homozygous and short heighted
D. Heterozygous and short heighted

Q.11 A test cross is best described by:
A. TT × Tt
B. TT × tt
C. tt × tt
D. Tt × Tt

Q.12 Mendel's law of independent assortment is not obeyed by:
A. Dominant genes
B. Mutant genes
C. Recessive genes
D. Linked genes

Q.13 In Mendelian dihybrid cross, how many individuals are homozygous recessive for both traits in F_2 generation?
A. 1/16
B. 4/16
C. 2/16
D. 6/16

Q.14 It is the chance of an event to occur:
A. Product rule
B. Summation rule
C. Division rule
D. Probability

Q.15 With a genotype AaBb, the fraction of gametes that will contain 'ab' alleles is:
A. 1/16
B. 1/4
C. 1/2
D. 3/4

Q.16 When two independent events are occurring simultaneously like in dihybrid cross, the ratio of each joint phenotypic combination can be obtained by:

A. Adding the probabilities of individual phenotypes
B. Multiplying the probabilities of individual phenotypes
C. Dividing the probabilities of individual phenotypes
D. Subtracting the probabilities of individual phenotypes

Q.17 When a single gene affects two or more traits, this phenomenon is termed as:

A. Epistasis
B. Gene linkage
C. Pleiotropy
D. Multi-allelic inheritance

Q.18 When the phenotype of the heterozygote is intermediate between phenotypes of the two parental homozygote, then this relation is termed as:

A. Complete dominance
B. Incomplete dominance
C. Co-dominance
D. Over dominance

Q.19 Which one might be the blood group of an individual with the following genetic makeup?

“L^ML^N, I^Ai, Dd, hh”

A. Phenotypically MN, A and Rh positive
B. Phenotypically MN, A and Rh negative
C. Phenotypically MN, O and Rh positive
D. Phenotypically MN, O and Rh negative

Q.20 Which of the following blood groups in humans is an example of co-dominance?

A. A
B. B
C. AB
D. O

Q.21 If a child has O type of blood group and the father has B type, then the genotype of the father will be

A. ii
B. I^Bi
C. I^AI^B
D. I^BI^B

Q.22 ABO blood groups in humans are best studied example of multiple allelism and are controlled by the polymorphic gene ‘I’, which has three alleles ‘I^A’ , ‘I^B’ and ‘i’. Since there are different alleles, six different genotypes are possible. How many phenotypes can occur?

A. One
B. Two
C. Three
D. Four

Q.23 All of the following are correct regarding ‘Rh’ blood group system except:

A. Quantitative expression of Rh-factor
B. Occupy two tightly linked loci
C. Three genes e.g. C, D and E
D. Rh factor present on RBCs

Q.24 Erythroblastosis foetalis can be caused when:

A. A^- male marries B^+ female
C. A^+ male marries B^+ female
B. AB^- male marries B^- female
D. O^+ male marries B^- female

Q.25 How many alleles of ABO blood group are present in an individual?

A. 1
B. 2
C. 3
D. 300

Q.26 Bombay phenotype is an example of:

A. Dominance
B. Epistasis
C. Pleiotropy
D. Polygenic inheritance

Q.27 In Bombay phenotype, ABO locus is on chromosome 9 while locus for ‘H’ gene is on chromosome:

A. 9
B. 19
C. 11
D. X

Q.28 Dominance is physiological effect of an allele over its partner allele occupying:

A. Same locus on same chromosome
B. Same locus on respective homologue
C. Different locus on same chromosome
D. Different locus on respective homologue

Q.29 During meiosis, crossing over occur between:

A. Sister chromatids of homologous chromosomes
B. Sister chromatids of non-homologous chromosomes
C. Non- sister chromatids of homologous chromosomes
D. Non-homologous chromatids of homologous chromosomes

Q.30 Crossing over is:
A. Important in genetic recombination
B. What makes a cell become cancerous
C. A process that occur during mitosis
D. An important mechanism of DNA repair

Q.31 Crossing over in diploid organism is responsible for:
A. Dominance of genes
B. Segregation of alleles
C. Linkage between genes
D. Recombination of linked allele

Q.32 The recombination frequency is directly proportional to the:
A. No. of tetrads formed
B. Distance between the linked gene loci
C. Number of times a cell divides
D. Total number of genes of an individual

Q.33 In humans, sex of an individual depends upon:
A. Homogametic mother
B. Homogametic father
C. Heterogametic mother
D. Heterogametic father

Q.34 Human skin color is a good example of:
A. Sex linked inheritance
B. X-linked inheritance
C. Polygenic inheritance
D. Y-linked inheritance

Q.35 ____________ form one linkage group on human chromosome 11.
A. Colour blindness, gout and albinism
B. Sickle cell anemia, leukemia and albinism
C. Colour blindness, hemophilia and gout
D. Sickle cell anemia, albinism and hemophilia

Q.36 How many linkage groups are present in humans?
A. 92
B. 23
C. 46
D. 9

Q.37 Which of the following is X-linked dominant trait in humans?
A. Hemophilia A
B. Red-green color blindness
C. Vitamin D resistant rickets
D. Testicular feminization syndrome

Q.38 This is not true about testicular feminization syndrome:
A. It is androgen insensitivity syndrome
B. Having blind vagina but no uterus
C. Individuals are females in appearance
D. Degenerated testes are present in scrotum

Q.39 If male is an affected case of hypophosphatemic rickets and female is normal, then chances of this trait in their offspring will be as under:
A. All daughters will be affected
B. 50% daughters will be affected
C. All sons will be affected
D. 50% sons will be affected

Q.40 After an injury, haemophiliac's blood fails to clot properly because it may have:
A. Reduction in blood clotting factors
B. Absence of blood clotting factors
C. Malfunctioning of blood clotting factors
D. All A, B, C

Q.41 Haemophilia 'A' occurs due to disturbance in __________ while haemophilia 'B' occurs due to disturbance in __________, respectively.
A. Factor, IX, factor X
B. Factor XI, factor VIII
C. Factor VIII, factor IX
D. Factor IX, factor XI

Q.42 If a carrier woman for haemophilia is married to a normal man, then all of the following combinations can exist except:
A. X^HX^H
B. X^hY
C. X^HY
D. X^hX^h

Q.43 Each type of cone cell has specific light absorbing proteins called:
A. Rhodopsin
B. Porphyrin
C. Opsins
D. Retinol

Q.44 If a female is colour blind having genetic combination X^cX^c, then the possible combination of her parents should be:
A. X^CX^C, X^CY
B. X^CX^c, X^cY
C. X^CX^C, X^cY
D. X^CX^c, X^CY

Q.45 A dichromate is unable to perceive:
A. One primary colour
B. Two primary colours
C. Three primary colours
D. All the colours

Q.46 Women with normal colour vision whose father was red-green colour blind married a red-green colour blind man. What is the probability of her first born child being red-green colour blind?

A. 1.0
B. 0.66
C. 0.75
D. 0.50

Q.47 A boy receives his X-chromosome from:

A. His mother only
B. His father only
C. Both father and mother
D. Either father or mother

Q.48 The genes of which of the following proteins are present on autosomes?

A. Red opsin and clotting factor VIII
B. Green opsin and clotting factor IX
C. Blue opsin and clotting factor XI
D. Blue opsin and clotting factor VIII

Q.49 _____________ may produce many different alleles of a gene.

A. Gene mutation
B. Gene transcription
C. Gene expression
D. Gene interference

Q.50 The method for analyzing inheritance pattern of traits in human being is:

A. DNA fingerprinting
B. Pedigree analysis
C. Control crosses
D. Karyotyping

Q.51 There are_________ variants of 'gene I' in human population:

A. Two
B. Three
C. Four
D. Five

Q.52 Mostly all sorts of biological information is stored by:

A. Nucleus
B. Chromosome
C. DNA
D. RNA

Q.53 The entire DNA sequence of an organism is called:

A. Phenotype
B. Genotype
C. Gene
D. Genome

Q.54 The individual having two different alleles of the same gene, is called:

A. Homozygous for that gene
B. Heterozygous for that gene
C. Homozygous for all genes
D. Heterozygous for all genes

Q.55 If a man of M blood group marries a woman of N blood group, all their children will have:

A. M blood group
B. N blood group
C. MN blood group
D. O blood group

Q.56 ____________form pairs on pairs of homologous chromosomes:

A. Genes
B. Alleles
C. Nucleotides
D. Nucleosides

Q.57 Transposons are:

A. Mutated genes
B. Polygenes
C. Jumping genes
D. Multiple alleles

Q.58 Pick up the codominant pair out of the following blood genotypes:

A. I^AI^A
B. I^BI^B
C. I^AI^B
D. ii

Q.59 Parents with following genotypes can produce kids having diverse blood types:

A. L^ML^N X L^ML^N
B. L^ML^M X L^NL^N
C. L^ML^M X L^ML^N
D. L^ML^M X L^ML^M

Q.60 In garden pea_________ flower color is dominant over__________.

A. White, purple
B. Purple, white
C. White, red
D. Red, white

Q.61 Flower color is a _____________ and red and white are its two_________.

A. Trait, genotypes
B. Phenotypes, trait
C. Trait, phenotypes
D. Genotype, phenotypes

Q.62 The physiological effect of an allele over its partner allele is called:

A. Homozygous
B. Heterozygous
C. Dominance
D. Codominance

Q.63 The contrasting pairs of alleles for all the seven characters chosen by Mendel showed:

A. Complete dominance
B. Codominance
C. Incomplete dominance
D. Over dominance

Q.64 When two different alleles of the same gene pair do not interfere in the phenotypic impact of each other, they have a dominance relation called:

A. Over-dominance
B. Complete dominance
C. Incomplete dominance
D. Co-dominance

Q.65 Expression of a gene is called its:

A. Dominance
B. Recessiveness
C. Phenotype
D. Genotype

Q.66 Pick up the recessive trait of Pisum sativum:

A. Green pod
B. Inflated pod
C. Constricted pod
D. Purple flower

Q.67 The part of chromosome, where gene is located is called:

A. Chromatid
C. Locus
B. Kinetochore
D. Allele

Q.68 When Mendel cross-fertilized the plants that differed in one character only, he got:

A. Dihybrid individuals
B. Monohybrid individuals
C. True-breeding individuals
D. Homozygous individuals

Q.69 In his crosses to study single trait inheritance in pea, Mendel self-fertilized F: plants and raised F_3. He noticed following results, EXCEPT:

A. 1/3 of F_1 round produced only round
B. 2/3 of F_2 round produced both round and wrinkled
C. All F_2 wrinkled produced only wrinkled
D. 2/3 of F_1 round were dihybrids like F_1

Q.70 When both alleles of a gene pair in an organism are same, the organism is called:

A. Homozygous for that gene
B. Hemizygous for that gene
C. Heterozygous for that gene
D. Homologous for that gene

Q.71 The cause of segregation of alleles of a gene is:

A. Meiosis
B. Sexual reproduction
C. Gametogenesis
D. Fertilization

Q.72 The cross used to test the genotype of an individual is called:

A. Back cross
B. Monohybrid cross
C. Dihybrid cross
D. Test cross

Q.73 When two true breeding individuals with contrasting traits are crossed together, in F1 we get:

A. All dominant individuals
B. All over dominant individuals
C. All codominant individuals
D. All hybrid individuals

Q.74 More than two alternate forms of a gene which arise by gene mutation are called:

A. Alleles
B. Allelomorphs
C. Multiple alleles
D. Jumping genes

Q.75 In F_2 of a monohybrid cross Mendel got 572 individuals, calculate the number of monohybrid individuals:

A. 143
B. 286
C. 429
D. 572

Q.76 A person with blood type will produce antibodies against antigen A and B:

A. A
B. B
C. A, B
D. O

Q.77 The sum of all the genetic information carried by members of a population is called:

A. Gene
B. Genome
C. Genotype
D. Gene pool

Q.78 MN blood types in man were discovered by:

A. Landsteiner and Bernstein
B. Bernstein and Levine
C. Levine and Landsteiner
D. Mendel and Landsteiner

Q.79 ABO system have:
A. Four different phenotypes
B. Two different phenotypes
C. Three different phenotypes
D. Five different phenotypes

Q.80 ABO blood group system was discovered by:
A. Thomas Hunt Morgan
B. Gregor Johann Mendel
C. Karl Correns
D. Karl Landsteiner

Q.81 The __________ heterozygote would have both substances at the same time:
A. Completely dominant
B. Codominant
C. Incompletely dominant
D. Over dominant

Q.82 Pick up the polymorphic gene of humans:
A. D
B. H
C. C
D. I

Q.83 Gene 'I' is located on:
A. Chromosome no. 19
B. Chromosome no.09
C. Chromosome no. 11
D. Chromosome no. 23

Q.84 ABO blood group system is an example of:
A. Polygenes
B. Multiple genes
C. Multiple alleles
D. Multiple mutations

Q.85 A kid with blood type O can be produced by the parents having following genotype:
A. $I^AI^B \times I^Ai$
B. $I^Ai \times I^Bi$
C. $I^Bi \times I^AI^B$
D. $ii \times I^BI^B$

Q.86 Upon test crossing a heterozygous round pea seed Mendel got:
A. Only round seeded plants
B. Only wrinkled seeded plants
C. Round and wrinkled seeded plants in ratio, respectively
D. Round and wrinkled seeded plants in ratio, respectively

Q.87 Universal recipients are the persons with blood type:
A. A
B. B
C. AB
D. O

Q.88 Mendel's law of independent assortment was based on:
A. Back cross
B. Monohybrid cross
C. Dihybrid cross
D. Test cross

Q.89 All the genes present on the homologous pair of chromosomes are:
A. Independently assorted
B. Linked to each other
C. Segregated during gametogenesis
D. Reshuffled during Meiosis

Q.90 MN blood type shows:
A. Incomplete dominance
B. Complete dominance
C. Codominance
D. Overdominance

Q.91 There are ________ linkage groups in human:
A. 46
B. 22
C. 80
D. 23

Q.92 Those traits assort independently whose alleles
A. Riding non homologous chromosomes
B. Riding homologous chromosomes
C. Located on different loci
D. Located on the same locus

Q.93 A person with following genotype lacks anti-A and anti-B antibodies:
A. I^Ai
B. I^Bi
C. ii
D. I^AI^B

Q.94 Alternate forms of a gene are called:
A. Genome
B. Alleles
C. Nucleosome
D. Chromosome

Q.95 In F2 of Mendel's dihybrid cross, homozygous recessive Individuals were:
A. 56.25 %
B. 37.5 %
C. 6.25 %
D. 50 %

Q.96 ABO blood system have:

A. Six possible genotypes
B. Four possible genotypes
C. Three possible phenotypes
D. Five possible phenotypes

Q.97 Blood type data is:

A. Sufficient evidence for disputed paternity
B. Not sufficient evidence for disputed paternity
C. Conclusive evidence for disputed paternity
D. Not reliable for disputed paternity

Q.98 A man of B phenotype cannot be father of a blood type A child, whose mother is of phenotype O. His father could either be:

A. O or AB phenotype
B. A or O phenotype
C. A or AB phenotype
D. M or MN phenotype

Q.99 MN blood type has:

A. Two phenotype
B. Three phenotype
C. Four phenotype
D. Five phenotype

Q.100 Which of the following characters of pea plant is dominant?

A. Terminal flowers
B. White flowers
C. Green pods
D. Wrinkled seeds

Q.101 Mendel was a:

A. Priest
B. Scientist
C. Geneticist
D. Biologist

Q.102 A sequence of DNA nucleotides on a chromosome that encodes a protein, tRNA and rRNA molecules or regulates the transcription of such a sequence is called:

A. Genome
B. Gene pool
C. Gene
D. Phenotype

Q.103 The genetic constitution underlying a single trait or set of traits is called:

A. Genome
B. Genotype
C. Allele
D. Gene

Q.104 An allele that is expressed both in the heterozygous and homozygous condition is called:

A. Recessive
B. Dominant
C. Codominant
D. Over dominant

Q.105 ____________ is a basic unit of heredity:

A. Codon
B. DNA
C. Nucleotide
D. Gene

Q.106 Following blood phenotypes may have heterozygous genotypes, EXCEPT:

A. A
B. B
C. AB
D. O

Q.107 Being a homozygous means having:

A. Two identical alleles of the same gene
B. Two different alleles of the same gene
C. Two identical alleles of the different genes
D. Two different alleles of the different genes

Q.108 A gene showing codominance has:

A. Alleles that are recessive to each other
B. Both alleles independently expressed in the heterozygote
C. One allele dominant on the other
D. Alleles tightly linked to each other

Q.109 All the genes/alleles found in all members of a breeding population at a given time constitute:

A. Genotype of that population
B. Diversity of that population
C. Gene pool of that population
D. Genome of that population

Q.110 Foundation of classical genetics was laid by:

A. Carl Correns
B. Johann Mendel
C. Karl Landsteiner
D. Bernstein

Q.111 Mendel performed series of breeding experiments on garden pea in his:
A. Laboratory garden
B. Village Garden
C. Private fields
D. Monastery Garden

Q.112 On crossing true breeding round with true breeding wrinkled, Mendel got:
A. Homozygous round
B. Heterozygous round
C. Homozygous wrinkled
D. Heterozygous wrinkled

Q.113 _________ trait always masks over completely the phenotypic effect of ________ trait:
A. Recessive, Dominant
B. Dominant, Recessive
C. Parental, Non-parental
D. Non-parental, Parental

Q.114 Mendel proceeded a step ahead. He self-fertilized F_2 plants to raise F_3. He noted that:
A. 1/3 of Fl round produced only round
B. 1/3 of F2 round produced both round and wrinkled
C. 2/3 of Fl round produced only round
D. 3/4 of Fl round produced only round

Q.115 The hereditary factors called ____ by Mendel, ____ were renamed as by Johannsen:
A. Elementen, genes
B. Genes, elementen
C. Genes, alleles
D. Alleles, genes

Q.116 An individual with a homozygous genotype is a:
A. Dominant individual
B. Recessive individual
C. Homozygote
D. Heterozygote

Q.117 The persons having blood group "O" are known
A. Universal donors
B. Universal recipients
C. Secretors
D. Non secretors

Q.118 In F_2 Mendel observed:
A. 3:1 genotypic ratio
B. 3:1 phenotypic ratio
C. 1:1 genotypic ratio
D. 1:1 phenotypic ratio

Q.119 A mating in which an individual showing a dominant phenotype is crossed with an individual showing its recessive phenotype is called:
A. Monohybrid cross
B. Dihybrid cross
C. Test cross
D. Back cross

Q.120 A phenotypically round seed may have:
A. Two genotypes
B. Two phenotypes
C. Many genotypes
D. Many phenotypes

Q.121 Genes that are located at the same position on homologous chromosome are called:
A. Recessive
B. Dominant
C. Alleles
D. Multiple alleles

Q.122 Mendel inferred that alleles are separated during:
A. Fertilization
B. Gamete formation
C. Crossing over
D. Mitosis

Q.123 Each gamete carries ___________ member(s) of multiple alleles:
A. Single
B. Double
C. Three
D. Many

Q.124 No antigen is found in blood of person having_______ blood group:
A. A
B. B
C. AB
D. O

Q.125 A trait being controlled by a di-allelic gene may have maximum:
A. Three phenotypic expressions
B. Two phenotypic expressions
C. Four phenotypic expressions
D. Many phenotypic expressions

Q.126 A monogenic trait showing more than three phenotypic manifestations is being controlled by:
A. Single allele
B. Two alleles
C. Multiple alleles
D. Recessive allele

Q.127 If test cross produces all dominant individuals, it means the tested phenotypically dominant individual was:
A. Heterozygous
B. Homozygous
C. Hemizygous
D. Nullizygous

Q.128 Parents with following genotypes cannot produce a kid with blood type O:
A. I^Ai X I^Bi B. I^Bi X i I^A
C. I^AI^B X ii D. ii X I^Ai

Q.129 The genetic compliment of a particular trait, represents its:
A. Phenotype B. Genotype
C. Morphology D. Karyotype

Q.130 A child of AB phenotype cannot be a child of a parents of phenotype:
A. A B. O
C. AB D. B

Q.131 A man of B phenotype cannot be father of a blood type A child, whose mother is of:
A. Phenotype A B. Phenotype O
C. phenotype B D. phenotype AB

Q.132 The offspring of first parental generation always represent the:
A. P_1 B. P_2
C. F_2 D. F_1

Q.133 A child has O phenotype whose mother has A phenotype and father has B phenotype. The genotype of parents will be:
A. I^AI^A X I^BI^B B. I^AI^A X I^Bi
C. I^BI^B X I^Ai D. I^Ai X I^Bi

Q.134 "Se" gene is located on chromosome number:
A. 09 B. 19
C. 11 D. 21

Q.135 Most reliable evidence for disputed paternity is:
A. Blood Analysis B. Pedigree analysis
C. DNA analysis D. Genotype analysis

Q.136 An intragenic interaction which may result in production of four different phenotypes in a population is represented by:
A. Epistasis B. Co-dominance
C. Complete dominance D. Multiple alleles

Q.137 A father with phenotype B and mother with phenotype O can produce children with phenotype:
A. A or B B. O or B
C. O or AB D. B or AB

Q.138 Flowers of Pisum sativum were:
A. Purple B. White
C. Axial D. Hermaphrodite

Q.139 ABO blood system is encoded by:
A. A single polymorphic gene B. Two polymorphic genes
C. Single isomorphic gene D. Two isomorphic genes

Q.140 In case of multiple allelic traits _________ alleles can be present in the genome of a diploid organism:
A. Multiple B. Any two
C. Three D. 300

Q.141 Antiserum is actually:
A. A blood serum with antibodies B. A blood serum with antigens
C. A blood serum without antibodies D. A blood serum without antigens

Q.142 A person whose both parents have blood type AB, will never has:
A. Genotype O B. Genotype A
C. Genotype AB D. Genotype B

Q.143 Sometimes a _________ protects the baby against a more severe Rh incompatibility:
A. Severe ABO compatibility B. Mild ABO compatibility
C. Severe ABO incompatibility D. Mild ABO incompatibility

Q.144 Jumping genes keep on hopping on:
A. Different loci of same chromosome B. Different loci of different cells
C. Different loci of different chromosomes D. Different loci of same or different chromosomes

Q.145 Expression of ABO antigen depends upon another gene:
A. I^A B. I^B
C. D D. H

Q.146 Which of the following characters of pea plant is recessive?
A. Axial flowers B. Purple flowers
C. Green pods D. Yellow pods

Q.147 Codominant alleles do not:
A. Exist together B. Segregate
C. Influence each other D. Express themselves

Q.148 Having blood type A means, you have:
A. Antibodies against A B. Antigen A
C. Antibodies against A & B D. Antigens A & B

Q.149 When alleles of a trait neither exhibit antagonism nor analogy, it means they have a relation called?
A. Complete dominance B. Incomplete dominance
C. Co-dominance D. Overdominance

Q.150 Two normal parents have an albino child. What is the probability that their next child will also be an albino?
A. 25% B. 50%
C. 75% D. 100%

Q.151 The number of linkage groups in an individual correspond to the number of:
A. Homologous pairs of chromosomes B. Genes on chromosome
C. Chromosomes in each cell D. Chromosomes in body

Q.152 Pick up the antagonistic pair:
A. Meiosis — crossmg over B. Crossing over recombination
C. Recombination variation D. Gene linkage — Independent assortment

Q.153 The law of independent assortment is not followed by the:
A. Linked genes whose loci are farther from each other
B. Linked genes whose loci are closer to each other
C. Genes located on same homologous pair of chromosomes
D. Genes present in the same genome

Q.154 ____________ is direct by proportional to the distance between the linked gene loci:
A. Gene linkage B. Recombination frequency
C. Mutation D. Codominance

Q.155 Haemophilia A and B, color blindness and testicular feminization are examples of:
A. X-linked dominant traits B. Y- linked dominant traits
C. Autosomal inheritance traits D. X linked recessive traits

Q.156 The phenomenon of staying together of all the genes of a chromosome is called:
A. Sex linkage B. Gene linkage
C. Epistasis D. Codominance

Q.157 Strength of gene linkage is inversely proportion to the following, EXCEPT:
A. Distance between gene loci B. Probability of crossing over
C. Probability of independent assortment D. Probability of retaining parental traits

Q.158 Crossing over is an exchange of chromosomal segments between:
A. Non sister chromatids of homologous chromosomes
B. Non sister chromatids of non-homologous chromosomes
C. Sister chromatids
D. Any of the above combination

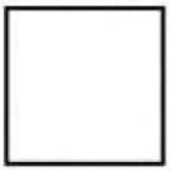
Q.159 Which phenomenon provides the raw material for evolution?
A. Recombination B. Gene linkage
C. Crossing over D. Mutation

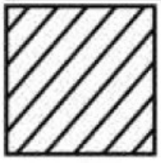
Q.160 Sex linkage in Drosophila was discovered by:
A. Sutton B. Watson
C. Mendel D. Morgan

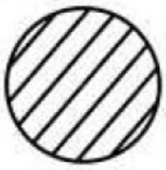
Q.161 Morgan and his colleagues studied more than________ traits in Drosophila:

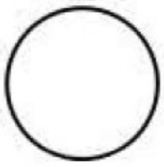
A. 85
B. 60
C. 90
D. 8

Q.162 Pick up the affected male from the following:

A)


B)


C)


D)


Q.163 Which trait is most likely to affect men than women?

A. X-linked recessive
B. X-linked dominant
C. Autosomal dominant
D. Autosomal recessive

Q.164 Gene for color blindness, haemophilia and gout etc. from a linkage group on chromosome number:

A. 11
B. 22
C. 23
D. 24

Q.165 With respect to transmission, haemophilia is a serious:

A. Hereditary disease
B. Physiological disease
C. Hematologic disease
D. Infectious disease

Q.166 Pick up the odd pair:

A. Haemophilia - A, Factor VIII
B. Haemophilia - B, Factor XI
C. Haemophilia - C, Factor XI
D. Haemophilia - B, Factor IX

Q.167 Out of common hemophiliac patients, minimum patients suffer from:

A. Haemophilia A
B. Haemophilia B
C. Haemophilia C
D. Parahemophilia

Q.168 A woman can suffer from Haemophilia A or B only when she is:

A. Homozygous dominant
B. Homozygous recessive
C. Heterozygous dominant
D. Hemizygous dominant

Q.169 A haemophiliac father passes his 'h' gene directly to his:

A. Son
B. Son's son
C. Daughter
D. Daughter's son

Q.170 In case of haemophilia A normal son of a carrier daughter inherits X chromosome of his:

A. Maternal grandmother
B. Paternal grandmother
C. Maternal grandparents
D. Fraternal grandparents

Q.171 Pick up the choice not true with respect to both haemophilia A and haemophilia-B:

A. Non allelic
B. Recessive
C. Allelic
D. Sex linked

Q.172 Just one recessive allele will display the trait of ____________in man:

A. Haemophilia - A and C
B. Haemophilia -Band C
C. Haemophilia- C and tritanopia
D. Haemophilia -A and B

Q.173 Haemophilia A and B always pass from:

A. Father to son
B. Father to daughter
C. Maternal grandfather to grandson
D. Paternal grandfather to grandson

Q.174 A hemophiliac man receives X chromosome indirectly from his:

A. Father's father
B. Mother's father
C. Grandfather's father
D. Grandmother's father

Q.175 Queen Victoria's haemophiliac son was prince:

A. Prince Nicholas
B. Leopold
C. Rupert
D. Charles

Q.176 If a carrier haemophiliac female (X^HX^h) is married to a haemophiliac male (X^hY). What will be the ratio of presence of haemophilia in the children? Select best answer from given condition:

$$X^HX^h \text{ x } X^hY$$

A. 100% all females and males will be hemophiliac

B. Carrier female 25%, hemophiliac female 25%, 25% normal male and 25% hemophiliac male

C. Females and males both have 50% and 75% chances of getting hemophilia

D. Females have 50% chances of getting hemophilia and males will be 100% hemophiliac

Q.177 Which of the following most appropriately describes haemophilia?

A. X-Iinked recessive gene disorder

B. Y-linked recessive gene disorder

C. X-Iinked dominant gene disorder

D. Sex limited traits

Q.178 If father of a child is haemophiliac and mother is a carrier the chances of the baby inheriting the disease will be:

A. 25%

B. 0%

C. 75%

D. 50%

Q.179 A man can suffer from Haemophilia A or B only when he is:

A. Homozygous dominant

B. Homozygous recessive

C. Hemizygous recessive

D. Hemizygous dominant

Q.180 Drosophila has __________________ pair of chromosomes:

A. 3

B. 4

C. 16

D. 20

Q.181 A female can be haemophiliac, if her parents have following genotype:

A. $X^HX^H \times X^HY$

B. $X^HX^H \times X^hY$

C. $X^HX^h \times X^hY$

D. $X^HX^h \times X^HY$

Q.182 Reduction in factor number XI results in:

A. Hemophilia A

B. Hemophilia B

C. Sex linked hemophilia

D. Autosomal hemophilia

Q.183 The only way to break the gene linkage is:

A. Meiosis

B. Crossing over

C. Gametogenesis

D. Sexual reproduction

Q.184 Haemophiliac man marries a normal woman. Their offspring will be:

A. All normal

B. All haemophiliac

C. All girls haemophiliac

D. All boys haemophiliac

Q.185 Mode of inheritance of human traits can be traced through:

A. Mating

B. Pedigree

C. Phylogeny

D. Outbreeding

Q.186 If a carrier female for haemophilia is married to a normal male, then all of the following combinations can exist, EXCEPT:

A. X^HY

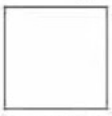
B. X^HX^H

C. X^hY

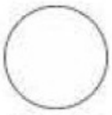
D. X^hX^h

Q.187 Pick up the sign denoting carrier female:

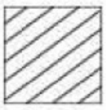
A)



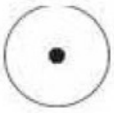
C)



B)



D)



Q.188 Out of the hemophiliac patients, how man suffer from type — A:

A. 10%

B. 20%

C. 30%

D. 80%

Q.189 Crossing over in diploid organism is responsible for:

A. Segregation of alleles

B. Recombination of linked alleles

C. Dominance of genes

D. Linkage between genes

Q.190 Pick up the most common type of haemophilia:

A. A

B. B

C. C

D. D

Q.191 What are the chances of a haemophilic son, whose mother is a carrier but father is normal?
A. 25%
B. 50%
C. 75%
D. 100%

Q.192 The exchange of segments between homologous chromosomes during meiosis cell division is called:
A. Gene linkage
B. Crossing over
C. Recombination
D. Assortment

Q.193 The allele for haemophilia C is located on:
A. X-chromosome
B. Y-chromosome
C. Autosome
D. Sex chromosome

Q.194 Genes located on the same chromosome are called:
A. Mutated genes
B. Linked genes
C. Jumping genes
D. Mobile genes

Q.195 Pick the correct formula of recombination frequency:
A. $= \frac{\text{Sum of all combinations}}{\text{Re combinant types}} \times 1000$
B. $= \frac{\text{Sum of all combinations}}{\text{Re combinant types}} \times 100$
C. $= \frac{\text{Re combinant types}}{\text{Sum of all combinations}} \times 100$
D. $= \frac{\text{Re combinant types}}{\text{Sum of all combinations}} \times 1000$

Q.196 All of the followings are true about linked genes, EXCEPT:
A. They reduce the chance of variation
B. Linkage groups correspond to number of homologous pairs
C. They are physical linked
D. They may show independent assortment

Q.197 Which one of the following features not belongs to linkage?
A. It keeps the genes together
B. It involves Individual chromosome
C. It increases variability
D. It provides higher frequency of parental type in the test cross progeny

Q.198 Which one of the following is also called royal disease?
A. Haemophilia
B. Colour blindness
C. Hypophosphatemia
D. Testicular feminization syndrome

Q.199 A carrier woman can have a haemophiliac son if married to:
A. A normal man
B. A hemophiliac man
C. Either a normal or a hemophiliac man
D. Either a hemophiliac or a carrier man

Q.200 Haemophilia is a serious hereditary disease because a haemophiliac may:
A. Suffers from immune deficiency
B. Bleed to death
C. Suffer from respiratory infection
D. Suffer from hypertension

Q.201 The chances of variation are minimized by:
A. Sex-linkage
B. Gene linkage
C. Crossing over
D. Recombination

Q.202 All the genes present on a homologous pair of chromosomes are:
A. Independent to assort
B. Linked to each other
C. Independent to remain together
D. Transferred to different individuals

Q.203 How many linkage groups are held by man?
A. 23
B. 24
C. 46
D. 02

Q.204 The only possibility of separation of linked genes is through:
A. Crossing over
B. Recombination
C. Variation
D. Chiasmata formation

Q.205 Which is not true about linked gene?
A. They reduce the chance of variation
B. They may show independent assortment
C. They are physically linked
D. Linkage groups correspond to number of homologous pairs

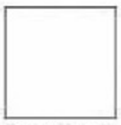
Q.206 Who for the first time found white eye mutant in Drosophila?

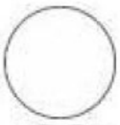
A. Morgan
B. Correns
C. Bridges
D. De varies

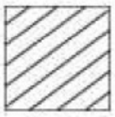
Q.207 ____________ traits inherit as zigzag from maternal grandfather through a carrier daughter to a grandson:

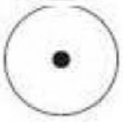
A. X-Iinked
B. Y-linked
C. Autosomal
D. Sex influenced

Q.208 Pick up the sign denoting normal female:

A)


C)


B)


D)


Q.209 Each type of Hemophilia involves deficiency of:

A. Same clotting factors
B. Different clotting factors
C. Two clotting factors
D. All clotting factors

Q.210 Alfred H. Sturtevant contributed in discovery of:

A. Rh blood system
B. Polygenic inheritance
C. Sex determination
D. Linkage map

Q.211 It never passes directly from father to son:

A. Hemophilia C
B. Blue blindness
C. Tritonopia
D. Hemophilia

Q.212 Exchange of segments between homologous chromosomes is called:

A. Segregation
B. Independent assortment
C. Crossing over
D. Mutation

Q.213 _____________ is caused by blood clothing factor XI:

A. Haemophilia C
B. Haemophilia B
C. Haemophilia D
D. Haemophilia A

Q.214 Pick up the very severe form of haemophilia:

A. A
B. B
C. C
D. D

Q.215 The number of linkage groups in an organism are _____________ to the number of homologous pair of chromosomes in that organism:

A. Grater
B. Smaller
C. Equal
D. All of these

Q.216 Pick up the one that affects more to men as compared to women:

A. Hemophilia A and C
B. Hemophilia B and C
C. Hemophilia A and B
D. Hemophilia C and D

Q.217 Minor cuts or bruises may result in death of a person when he/she suffers from:

A. Hypophosphatemia
B. Protanopia
C. Hemophilia
D. Immunodeficiency

Q.218 The percentage of hemophiliacs suffering from type — B is:

A. 10%
B. 80%
C. 20%
D. 30%

Q.219 Hemophilia A and B zigzag from maternal grandfather through a _________ to a grandson:

A. Sufferer daughter
B. Normal daughter
C. Carrier daughter
D. Carrier son in law

Q.220 A hemophiliac son receives the 'h' gene from:

A. Affected father
B. Normal father
C. Normal mother
D. Carrier mother

Q.221 The single recessive allele for hemophilia expresses itself successfully in the:

A. Hemizygous daughter
B. Hemizygous son
C. Homozygous son
D. Heterozygous son

Q.222 The cross-over data may also be used to determine the location of:

A. Chromosome on gene

B. RNA on chromosome

C. Protein of chromosome

D. Gene on chromosome

Q.223 Which one of the following is autosomal recessive trait?

A. Male pattern baldness

B. Beard growth in humans

C. Haemophilia C

D. Hypophosphatemic rickets

Q.224 Haemophilia A is due to abnormality of factor:

A. X

B. VII

C. IX

D. VIII

Q.225 Normal fruit flies Drosophila, the wild type, has:

A. Dark red eyes

B. Red eyes

C. Bright red eyes

D. White eyes

Q.226 Linked genes:

A. Can never be separated from each other

B. Are located on different chromosomes

C. Increase chances of variations

D. Belong to single molecule of DNA

Q.227 The recombination frequency is directly proportional to the:

A. Distance between the linked gene loci

B. Distance between the non-linked gene loci

C. Probability of gametogenesis

D. Probability of meiosis

Q.228 _______________ is a mild type of haemophilia:

A. A

B. B

C. C

D. D

Q.229 Crossing over occurs:

A. At two strand stage between two sister chromatids

B. At four strand stage between two sister chromatids

C. At two strand stage between two non-sister chromatids

D. At four strand stage between two non-sister chromatids

Q.230 Pick up allelic recessive type of hemophilia in males:

A. Hemophilia A

B. Hemophilia B

C. Hemophilia C

D. Hemophilia D

Q.231 Which one of the following can never pass direct from father to son?

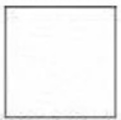
A. Hemophilia — A and C

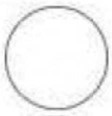
B. Hemophilia — B and C

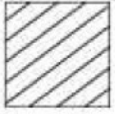
C. Hemophilia — C and D

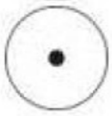
D. Hemophilia — A and B

Q.232 Which one of the following symbols and its representation, used in human pedigree analysis is correct?

A)  = Affected male

C)  = Affected female

B)  = Unaffected male

D)  = Carrier female

Q.233 Haemophilia B is due to abnormality of factor:

A. X

B. VII

C. IX

D. VIII

Q.234 What is the probability that a male will inherit an X-linked recessive gene from his father?

A. 0 percent

B. 25 percent

C. 50 percent

D. 75 percent

Q.235 The genes present on sex chromosomes but not controlling sexual characters are called:

A. Autosomal linkage

B. Sex linkage

C. Y linkage

D. XX linkage

Q.236 Pick up the 2nd most common type of haemophilia:

A. A

B. B

C. C

D. D

Q.237 __________ is perfect for genetic research:

A. Grasshopper
B. Drosophila
C. Cockroach
D. House fly

Q.238 T.H Morgan (1910) for the first time discovered ______ in Drosophila:

A. Segregation
B. Independent assortment
C. Crossing over
D. Sex linkage

Q.239 All chromosomes other than sex chromosomes are called:

A. Polysome
B. Autosomes
C. Mesosome
D. Acrosome

Q.240 If a gene is found on X-chromosome only then it is said to be:

A. X-linked
B. Y-linked
C. Sex linked
D. XY linked

Q.241 The phenomenon of sex linkage was discovered by:

A. Carl Correns
B. T.H. Morgan
C. Nilsson Ehle
D. Calvin Bridge

Q.242 Greater is the distance between gene loci:

A. Lesser will be the chance of crossing over
B. Greater will be the chance of crossing over
C. Stronger will be the gene linkage
D. Negligible will be the chances of crossing over

Q.243 Pick up the matching pair:

A. Hemophilia — A, Factor XI
B. Hemophilia — B, Factor VIII
C. Hemophilia — C, Factor IX
D. Hemophilia — A, Factor VIII

Q.244 X-linked recessive trait is:

A. Hypophosphatemia
B. Vitamin-D resistant rickets
C. Haemophilia
D. Diabetes mellitus

Q.245 Crossing over take place in the:

A. Prophase I
B. Metaphase I
C. Anaphase I
D. Telophase I

Q.246 _____________is the proportion of recombinant types between two gene pairs as compared to the sum of all combinations:

A. Linkage
B. Gene map
C. Cross over
D. Recombination frequency

Q.247 Type of haemophilia which affects both men and women equally is:

A. Haemophilia — A
B. Haemophilia — B
C. Haemophilia — C
D. Both haemophilia A and B

Q.248 In which situation, genes are not assorted independently during meiosis in a chromosome?

A. When genes are not linked and their loci are far apart
B. When there are too many genes on a chromosome
C. When some gene have mutated on the chromosome
D. When genes are linked and their loci are close to each other

Q.249 The entire genome of _____________ has been successfully sequenced as part of human genome project:

A. Grasshopper
B. Drosophila
C. Firefly
D. House fly

Q.250 The percentage of crossing over is more:

A. When genes are not linked
B. If linkage genes are located close to each other
C. If genes are located in different locations
D. When linked genes are located far apart from each other

Q.251 Gregor John Mendel laid down the foundation of:

A. Modern genetics
B. Classical genetics
C. Population genetics
D. Phylogenetics

Q.252 Mendel performed series of breeding experiments on garden pea:

A. In his farmhouse garden
B. In his monastery garden
C. In a public park garden
D. In his school garden

Q.253 Pick up the dominant one among the following traits of Pisum sativum:
A. Yellow pod B. Constricted pod
C. Green colored seed D. Round shaped seed

Q.254 As a result of monohybrid cross Mendel got:
A. 25% round C. 75% round
B. 50% round D. 100% round

Q.255 Punnet square indicates that ______ of F2 progeny would have been homozygous round _______ heterozygous round and ______ wrinkled, respectively:
A. 1/4, 2/4, 1/4 C. 2/4, 1/4, 1/4
B. 1/4, 1/4, 2/4 D. 2/4, 1/4, 2/4

Q.256 Mendel devised a cross called test cross, which is used to test the ______ of an individual showing a dominant ______:
A. Genotype, phenotype B. Phenotype, genotype
C. Vigor, phenotype D. Vigor, genotype

Q.257 _________ could be homozygous (RR) or heterozygous (Rr) genotype:
A. A genotypically round seed B. A phenotypically round seed
C. A genotypically wrinkled seed D. A phenotypically wrinkled seed

Q.258 Wrinkled seed plant is:
A. Always heterozygous recessive B. Always heterozygous dominant
C. Always homozygous recessive D. Always homozygous dominant

Q.259 What is depicted from the results of test cross given here below?
Round = 50% Wrinkled = 50%
A. The tested individual was heterozygous dominant
B. The tested individual was heterozygous recessive
C. The tested individual was homozygous dominant
D. The tested individual was homozygous recessive

Q.260 What was the ratio of new phenotypic combination in F2 of Mendel's dihybrids?
A. 3/16 C. 9/16
B. 1/16 D. 6/16

Q.261 What type of gametes will be formed by a plant with RrYy genotype?
A. RR, YY, rr, yy C. RY, Ry, rY, ry
B. RR, yy, Rr, Yy D. Rr, Yy, rr, yy

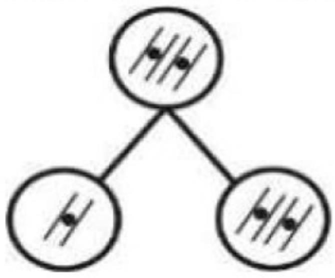
Q.262 In F2 of a monohybrid cross the independent chance for a pea seed to be round is:
A. 3/4 C. 4/4
B. 1/4 D. 2/4

Q.263 Independent assortment of _______ depends upon independent assortment of their _______, respectively:
A. Genes, chromosomes B. Chromosomes, genes
C. Genes, nucleotide sequence D. Genes, cells

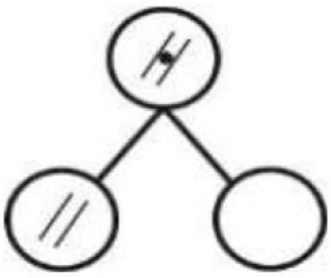
Q.264 Mendel's work was rediscovered and acknowledged after:
A. Sixteen years of his death B. Twenty years of his death
C. Twenty-four years of his death D. Thirty-four years of his death

Q.265 Which one of the following exhibits segregations?

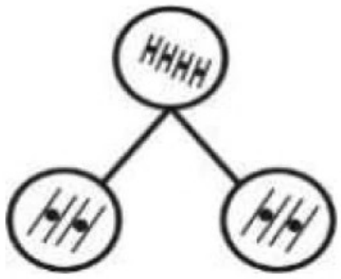
A.



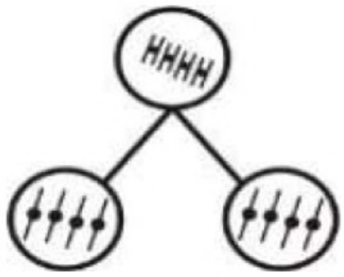
B.



C.



D.



Q.266 In F2 of monohybrid cross mendel got homozygous and heterozygous individuals respectively in:

A. 1:1 ratio
B. 3:1 ratio
C. 1:2:1 ratio
D. 1:3 ratio

Q.267 In F2 of dihybrid cross Mendel obtained _______% parental types:

A. 37.5
C. 66.5
B. 62.5
D. 33.5

Q.268 In P1 of test cross, one parent will always be:

A. Homozygous dominant
B. Homozygous recessive
C. Heterozygous dominant
D. Heterozygous recessive

Q.269 Identify the genotype depicting complete dominance:

A. Aa
B. AB
C. A_1A_2
D. W^+/W

Q.270 Any blood transfusion is ideally safe, if it does not cause:

A. Hemopoisis in the recipient
B. Immunization in the recipient
C. Circulation in the recipient
D. Agglutination in the recipient

Q.271 Diagrams showing the order and distance between genes; constructed using crossover information is called:

A. Recombination
C. Segregation
B. Genetic maps
D. Phenotype

Q.272 Trait which can only in human male:

A. Color blindness
B. Haemophilia
C. Hypophosphatemic rickets
D. Tfm

Q.273 A type of genetic analysis in which a trait is traced through several generations of a family to determine how the trait is inherited is called:

A. Pedigree analysis
C. Gene linkage
B. Genetic maps
D. Crossing over

Q.274 Humans have X – linked recessive traits like:

A. Hemophilia
B. Vitamin D – resistant rickets
C. Hypophosphatemic rickets
D. SRY gene

Q.275 Humans have:

A. 46 chromosomes
B. 46 pairs of chromosomes
C. 23 chromosomes
D. 22pairs of chromosomes

Q.276 Hemophiliac's blood fails to clot properly after an injury, because of the following reasons, EXCEPT:

A. A reduction of blood clotting factors
B. A malfunction of blood clotting factors
C. A complete absence of blood clotting factors
D. A reduction in hemopoitic stem cells

Q.277 Hemophilia is a serious:

A. Hereditary disease
B. cardiovascular disease
C. Physiological disease
D. Immunodeficiency

Q.278 A hemophiliac may:

A. Suffer from immune deficiency
B. Suffer from respiratory infection
C. Bleed to death
D. Suffer from hypertension

Q.279 Hemophilia is of:

A. Two types
C. Four types
B. Three types
D. One types

Q.280 The percentage of Hemophiliac patients suffering from type – C is:

A. Negligible
C. 20%
B. 80%
D. 30%

Q.281 Pick up the one that affects more men as compared to women:

A. Hemophilia – A
B. Both Hemophilia A and B
C. Hemophilia – B
D. Hemophilia – C

Q.282 Type of Hemophilia which affects the both men and women equally is:

A. Hemophilia – A
B. Both Hemophilia – A and Hemophilia – B
C. Hemophilia – B
D. Hemophilia – C

Q.283 Chances for a man to be affected by Hemophilia – A and B are:

A. Greater than a woman
B. Equal to a woman
C. Less than a woman
D. Variable as compared to woman

Q.284 Pick up the disorder that occurs by one recessive allele in man but by two recessive alleles in woman:

A. Hemophilia – A
B. Hemophilia – C
C. Hemophilia – B
D. Hemophilia – A and B

Q.285 It zigzags from maternal grandfather through a carrier daughter to a grandson:

A. Hemophilia – A
B. Hemophilia – C
C. Hemophilia – B
D. Hemophilia – A and B

Q.286 A hemophiliac man receive 'Xh' indirectly from his:

A. Father's father
B. Mother's father
C. Grandfather's father
D. Grandmother's father

Q.287 The single recessive allele for hemophilia is expressed successfully in the:

A. Hemizygous daughter
B. Homozygous son
C. Hemizygous son
D. Heterozygous son

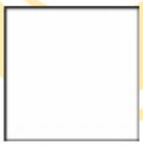
Q.288 A son of a carrier daughter will be affected by hemophilia if he inherits X chromosome of:

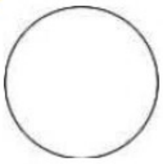
A. Maternal grandmother or paternal grandmother
B. Maternal grandfather or maternal grandmother
C. Paternal grandmother or paternal grandfather
D. Paternal grandfather, maternal grandfather

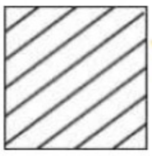
Q.289 The pedigree of Queen Victoria's family shows hemophilic sons in generation no.:

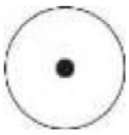
A. II
C. IV
B. III
D. II, III and IV all

Q.290 Pick up the sign denoting carrier daughter:

A.


C.


B.


D.


Q.291 The cause of testicular feminization syndrome is:

A. A recessive gene on X – chromosome
B. A recessive gene on Y – chromosome
C. A dominant gene on X – chromosome
D. A dominant gene on Y – chromosome

Q.292 Following are the symptoms of testicular feminization syndrome, EXCEPT:

A. Female genitalia
B. No breast
C. Blind vagina
D. Degenerated testes

Q.293 All daughters of an affected father, but none of his sons are affected in case of:

A. X – linked dominant traits
B. Y – linked dominant traits
C. X – linked recessive traits
D. Y – linked recessive traits

Q.294 Gene linkage means:

A. Linkage of a gene with male
B. Linkage of a gene with female
C. Linkage of a gene with particular gender
D. Linkage of a gene with a particular gene

Q.295 The term "linkage" was coined by:

A. G. Mendel
C. T.H. Morgen
B. W. Sutton
D. T. Boveri

Q.296 A male human is heterozygous for autosomal genes A and B and is also hemizygous for haemophilic gene h. what proportion of his spers will be abh?

A. 1/8
C. 1/16
B. 1/32
D. 1/4

Q.297 A diseased man marries a normal woman. They get three daughters and five sons. All the daughters were diseased and sons were normal. The gene of this disease is:

A. Sex linked dominant
B. Sex linked recessive
C. Sex limited character
D. Autosomal doiminant

Q.298 Haemophilic man marries a normal woman. Their offsprings will be:

A. All haemophilic
B. All boys haemophilic
C. All girls haemophilic
D. All normal

Q.299 A woman with two genes for haemophilia and one gene for colour blindness on one of the 'X' chromosomes marries normal man. How will the progeny be?

A. 50% haemophilic colour blind sons and 50% normal sons
B. 50% haemophilic daughters (carrier) and 50% colour blind daughters (carrier)
C. All sons and daughters haemphilic and colour-blind
D. Haemphilic and colour blind daughters

Q.300 Haemophilia is more common in males because it is a:

A. Recessive character carried by Y-chromosome
B. Dominant character carried by Y-chromosome
C. Dominant trait carried by X-chromosome
D. Recessive trait carried by X-chromosome

Q.301 Humans X – linked dominant trait is:

A. Hemophilia
B. Color blindness
C. Hypophosphatemia
D. Pattern baldness

Q.302 Which one of the following traits, does not exhibit sex linkage?

A. Protonopia
B. Tritanopia
C. Deuteranopia
D. Hemophilia A

Q.303 Such traits whose genes are located on both x and y chromosomes are called:

A. X and Y linked traits
B. Pseudoautosomal traits
C. Mixed traits
D. Pseudoautosomal and X and Y linked traits

Q.304 Which type of haemophilia is an autosomal recessive trait?

A. A
B. C
C. B
D. Both B and C

Q.305 A carrier woman will have a hemophiliac son when married to a:

A. Normal man
B. Affected man
C. Either normal or hemophiliac man
D. Carrier man

Q.306 Which of the following is X-linked recessive trait in humans?

A. Hypophosphatemic ricket
B. Haemophilia
C. Maleness
D. Testicular feminization syndrome

Q.307 Hemophilia affects males more than females because of:

A. Dominant autosome
B. X-linked dominant inheritance
C. X-linked recessive inheritance
D. Y-linked inheritance

Q.308 Chances for a man to be affected by Hemophilia – A and B are:

A. Greater than a woman
B. Less than a woman
C. Equal to a woman
D. Always variable

Q.309 Genes for color blindness, hemophilia and gout form a linkage group on:

A. Sex chromosome
B. Autosome
C. X – chromosome
D. Y – chromosome

Q.310 Which one of the traits zigzags from maternal grandfather through a carrier daughter to a grandson?

A. Autosomal traits
B. Y-linked traits
C. X-linked recessives traits
D. X & Y-linked dominants traits

Q.311 It is not practically possible in humans:
A. Experimental mating
B. Determining the pattern of inheritance
C. Pedigree analysis
D. Mating

Q.312 X – linked dominant traits are common in:
A. Males
B. Females
C. Insects
D. Males and females

Q.313 Number of pairs of autosomes in humans is:
A. 23
B. 24
C. 21
D. 22

Q.314 Gene linkage means:
A. Linkage of a gene with male
B. Linkage of a gene with female
C. Linkage of a gene with particular gender
D. Linkage of a gene with a particular gene

Q.315 The total number of linkage groups in human being is:
A. Two
B. Twenty-Three
C. Forty-six
D. Not fixed

Q.316 Genes showing linkage are always located on:
A. Same chromosome of different genomes
B. Different chromosomes of same genome
C. Same chromosome of same genome
D. Different chromosomes of different genomes

Q.317 What are the number of linkage groups in Drosophila?
A. 4
C. 16
B. 8
D. 32

Q.318 Linked genes can be separated by:
A. Crossing over
C. Mitosis
B. Mitosis
D. Apoptosis

Q.319 Sex chromosomes in human male are:
A. Analogous and heteromorphic
B. Homologous and heteromorphic
C. Non-homologous and heteromorphic
D. Homologous homomorphic

Q.320 ________ provided experimental evidence in support of chromosomal theory of inheritance:
A. Calvin bridges
C. T. H. Morgan
B. W.S. Sutton
D. Carl Correns

Q.321 _______ traits inherit as zigzag from maternal grandfather through a carrier daughter to a grandson:
A. X-linked
B. Y-linked
C. Autosomal
D. Sex influenced

Q.322 Which one of the following minimized the chances of variation?
A. Crossing over
B. Recombination
C. Meiosis
D. Gene linkage

Q.323 A female can be hemophiliac, if her parents have following genotype:
A. $X^HX^H \times X^hY$
B. $X^HX^h \times X^HY$
C. $X^HX^H \times X^HY$
D. $X^HX^h \times X^hY$

Q.324 XO condition in drosophila produces:
A. Sertile female
B. Sertile male
C. Fertile male
D. Fertile female

Q.325 Hemophilic man marries a normal woman, their offsprings will be:
A. All hemophilic
B. All boys hemophilic
C. All daughters hemophilic
D. All normal

Q.326 Which one of the following will be hemophilic?
A. X^HY^h
B. X^HY^H
C. X^hY
D. X^HY

Q.327 A man with blood group 'A' marries a woman with blood group 'B'. What are all possible blood groups of their offsprings?
A. A, B, and O
B. O only
C. A and B only
D. A, B and AB only

Q.328 A normal gene or individual found in a natural population is called:
A. Mutant type B. Wild type
C. Hybrid type D. Contrast type

Q.329 The_________ blood group is universal donor because it can donate blood to___________ blood groups:
A. O -ve, all B. AB +ve, all
C. AB +ve, O -ve D. O +ve, AB-

Q.330 A gene is said to be dominant if:
A. It expresses it's effect only in homozygous state
B. It expresses it's effect only in heterozygous condition
C. It never expresses it's effect in any condition
D. It expresses it's effect both in homozygous and heterozygous condition

Q.331 Mendel's last law is:
A. Segregation B. Dominance
C. Independent assortment D. Polygenic inheritance

Q.332 The type of cross which involves only one pair of contrasting character is called:
A. Monohybrid cross B. Dihybrid cross
C. Trihybrid cross D. Hemihybrid cross

Q.333 _______________ do not settle peacefully on their loci, they keep on hopping on different loci on the same chromosome or other chromosomes:
A. Mutated genes B. Polygenes
C. Jumping genes D. Multiple alleles

Q.334 In garden pea__________ seed color is dominant over____________
A. White, purple B. Red, white
C. White, red D. Yellow, green

Q.335 It is the form of appearance of a trait:
A. Recessiveness B. Dominance
C. Genotype D. Phenotype

Q.336 F_2 generation in a Mendelian cross showed that both genotypic and phenotypic ratios are same as 1 : 2 : 1. It represents a case of:
A. Co-dominance
B. Dihybrid cross
C. Monohybrid cross with complete dominance
D. Monohybrid cross with incomplete dominance

Q.337 Pick up the dominant trait of garden pea:
A. Yellow pod B. Constricted pod
C. Wrinkled seed D. Purple flower

Q.338 The position of a gene on the chromosome is called
A. Secondary constriction B. Kinetochore
C. Locus D. Telomere

Q.339 This cross finds out the homozygous or heterozygous nature of the genotype:
A. Self-cross B. Monohybrid cross
C. Back cross D. Test cross

Q.340 More than two alternate forms of a gene which arise by gene mutation are called:
A. Alleles B. Multiple alleles
C. Genotypes D. Jumping genes

Q.341 A person with blood type________ will produce antibodies against antigen________.
A. A, AB B. B. B
C. AB, None D. O, A

Q.342 All the gene alleles found in a breeding population at a given time are collectively called the:
A. Gene B. Genome
C. Genotype D. Gene pool

Q.343 _______________ blood group system was discovered by__________:
A. ABO, Felix Bernstein B. MN, Karl Landsteiner
C. ABO, Karl Landsteiner D. MN, Gregor Johann Mendel

Q.344 ABO blood system have:
A. Five possible genotypes
B. Four possible phenotypes
C. Three possible phenotypes
D. Six possible phenotypes

Q.345 An allele in another word for:
A. Genotype
B. Gene
C. Phenotype
D. Genome

Q.346 The sequence of DNA nucleotides on a chromosome that encodes a protein tRNA or rRNA molecules or regulates the transcription of such a sequence:
A. Anticodon
B. DNA
C. Nucleotide
D. Gene

Q.347 In F2 of dihybrid cross Mendel observed:
A. 1:8:3:1 genotypic ratio
B. 9:3:3:1 phenotypic ratio
C. 1:9:1:3 genotypic ratio
D. 3:9:3:3 phenotypic ratio

Q.348 The offspring of second parental generation always represent the:
A. P2
B. P1
C. F2
D. F1

Q.349 A child have AB phenotype whose mother has A phenotype and father has B phenotype. The genotype of parents will be:
A. I^AI^A X I^BI^B
B. I^AI^A X I^Ai
C. I^BI^B X I^Bi
D. I^Ai x I^Ai

Q.350 The blood serum containing__________ is called antiserum:
A. Antibodies
B. Antigens
C. Interferons
D. Vaccine

Q.351 The tendency of individuals to resemble their parents is known as:
A. Molecular biology
B. Variation
C. Genetics
D. Hereditary

Q.352 Pick up recessive trait in pea plant:
A. Spherical seed
B. Green pod
C. Purple flower
D. Terminal flower

Q.353 An organism originated from crossing genetically dissimilar parents is called:
A. True breed
B. Hybrid
C. Fertile
D. Sterile

Q.354 If there is cross between round yellow and wrinkled green, the F2 gives wrinkled green as under:
A. 1/16
B. 2/16
C. 3/16
D. 9/16

Q.355 MN blood type has:
A. Three phenotypes
B. Two phenotypes
C. Four phenotypes
D. Five phenotypes

Q.356 The genetic constitution underlying a single trait or set of traits is called:
A. Gene
B. Allele
C. Genotype
D. Genome

Q.357 It is the chance of an event to occur:
A. Mutation
B. Probability
C. Recombination
D. Product rule

Q.358 The allele which is unable to express its effect in the presence of another is called:
A. Dominant
B. Over dominant
C. Codominant
D. Recessive

Q.359 Which one of the following blood group is always homozygous?
A. A
B. B
C. AB
D. O

Q.360 Blood groups are usually specified due to the presence of:
A. Antigens on WBCs
B. Antigens on RBCs
C. Antibodies in plasma
D. Antibodies in RBCs

Q.361 A male with phenotype O and female with phenotype B can produce children with phenotype:

A. A or B
B. O or B
C. O or AB
D. B or AB

Q.362 When an Rh -ve female is married to an Rh +ve male. Whose father was also Rh -ve. What will be the percentage of erythroblastosis fetalis in their babies?

A. 0
B. 25
C. 50
D. 100

Q.363 Having blood type AB means, you have:

A. Antibodies against A
B. Antigen A
C. Antibodies against A & B
D. Antigens A & B

Q.364 Each character is controlled by a pair of:

A. Enzymes
B. Chromosomes
C. Proteins
D. Alleles

Q.365 ________________ is popularly known as the "Father of genetics":

A. Corriens
B. Morgan
C. Mendel
D. Johannsen

Q.366 The persons having blood group "AB" are known as:

A. Universal donors
B. Non secretors
C. Secretors
D. Universal recipients

Q.367 Rr crosses with rr. What will be characteristics of offspring?

A. 25 recessive
B. 50 dominants
C. 75 recessive
D. 75 dominants

Q.368 Partner of a gene pair occupying the same gene locus:

A. Allele
B. Genome
C. Genotype
D. Jumping gene

Q.369 Multiple alleles are present:

A. One different chromosome
B. At different loci on the same chromosome
C. At the same locus of the chromosome
D. On non-sister chromatids

Q.370 An organism with two identical alleles is:

A. Dominant
B. Homozygous
C. Heterozygous
D. Hybrid

Q.371 ____________ explained the genetic basis of ABO system:

A. P. A Levene
B. H Morgan
C. Bernstein
D. Landsteiner

Q.372 The property of one of a pair of alleles that suppresses the expression of the other member of the pair in heterozygotes is called:

A. Incomplete dominance
B. Overdominance
C. Dominance
D. Co-dominance

Q.373 Rh blood group is defined on the basis of______ present on the surface of ____ cells:

A. Antibodies, red blood
B. Protein factors, red blood
C. Protein factors, white blood
D. Antigens, osteocyte

Q.374 The term gene was introduced by ____________in 1909:

A. Gregor John Mendel
B. Wilhelm Johnson
C. Carl Correns
D. Karl Landsteiner

Q.375 An allele whose trait only shows up when no dominant allele is present:

A. Dominant allele
B. Recessive allele
C. Hidden allele
D. Present allele

Q.376 The science of studying the DAN sequence and properties of entire genome is called:

A. Proteomics
B. Genomics
C. Metabolomics
D. Enzyomics

Q.377 The ideal Mendelian ratio of independent assortment is deviated by:

A. Crossing over
B. Gene linkage
C. Recombination of genes
D. Reshuffling of genes

Q.378 Gene linkage can easily be detected by performing:

A. Back cross　B. Self cross
C. Test cross　D. Reciprocal cross

Q.379 If dihybrid test cross produces all four phenotypic combinations (parental and recombinants) in equal ratio, it proves that:

A. Genes are physically linked together
B. Genes are physiologically linked together
C. Genes are located on the same homologous pair of chromosomes
D. Genes are located on different homologous pairs of chromosomes

Q.380 If a dihybrid test cross produces more parental types and less recombinant types, this indicates that there

A. Complete linkage　B. No linkage
C. Incomplete linkage　D. Independent linkage

Q.381 9 : 3 : 3 : 1 ratio obtained in Mendel's dihybrid cross, negates:

A. Independent assortment　B. Segregation
C. Gene linkage　D. Crossing over

Q.382 The process, responsible for the recombination of linked genes is:

A. Crossing over　B. Independent assortment
C. Gene linkage　D. Sex linkage

Q.383 Percentage of crossing over or recombinant frequency has helped in following ways, EXCEPT:

A. Determining the sequence of genes on chromosomes
B. Preparation of chromosomal maps
C. Determining the nucleotide sequence on genes
D. Locating the genes on chromosomes

Q.384 On the basis of types of chromosomes carrying linked genes, the gene linkage can be divided into:

A. Two types　B. Three types
C. Four types　D. Five types

Q.385 On the basis of pattern of inheritance X-Y linked traits are also called as:

A. Sex linked traits　B. Autosomal traits
C. Sex chromosomal traits　D. Pseudo autosomal traits

Q.386 During his experiment on *Drosophila*, Morgan found an unusual:

A. White eyed male fly　B. Red eyed male fly
C. White eyed female fly　D. Red eyed female fly

Q.387 Male *Drosophila* has:

A. Larger size　B. Pointed abdomen
C. Three pairs of legs　D. Sex comb on front legs

Q.388 Following sex linked traits show exclusive inheritance on the basis of gender:

A. X — linked recessive traits　B. X — linked dominant traits
C. Y — linked traits　D. Autosomal traits

Q.389 Example of Y — linked traits is:

A. Hypophosphatemic rickets　B. Mutant eye color in Drosophila
C. SRY gene of human male　D. Hemophilia A and B

Q.390 X — linked dominant traits are:

A. Expressed more in males
B. Expressed more in females
C. Expressed equally in males and females
D. Zigzagged from maternal grandfather to grandsons

Q.391 In F_2 generation T.H. Morgan got:

A. All white eyed female flies　B. All white eyed male flies
C. All red eyed female flies　D. All red eyed male flies

Q.392 In *Drosophila* the wild type have:

A. Red eye color　B. White eye color
C. Bright red eye color　D. Pigment less eye color

Q.393 Pick up the cross which yielded white eyed male as well as white eyed females Drosophila flies, in Morgan's experiments:

A. $X^{W+} X^{W+}$ x $X^{W} Y$
B. $X^{W+} X^{W+}$ x $X^{W+} Y$
C. $X^{W+}X^{W}$ x $X^{W+} Y$
D. $X^{W+} X^{W}$ x $X^{W} Y$

Q.394 On crossing a heterozygous/ carrier female Drosophila with normal/ red eyed male Drosophila, Morgan got:

A. All white eyed male flies
B. All white eyed female flies
C. 50 percent of the male flies white eyed and 50 percent of the male flies red eyed
D. 50 percent white eyed female flies and 50 percent red eyed female flies

Q.395 A geneticist raised a Drosophila progeny where all members were mutant eyed, what was the genotype of the parents?

A. $X^{W} X^{W}$ x $X^{W+} Y$
B. $X^{W} X^{W}$ x $X^{W} Y$
C. $X^{W+} X^{W}$ x $X^{W+} Y$
D. $X^{W+} X^{W+}$ x $X^{W} Y$

Q.396 An affected girl was married with a normal boy. They produced four kids i.e. one affected daughter, one normal daughter and one affected son and one normal son. Name the disorder:

A. Hemophilia A
B. Red blindness
C. Hypophosphatemia
D. Hemophilia B

Q.397 Pick up an example of X linked dominant traits in humans:

A. Hemophilia A
B. Hemophilia C
C. Color blindness
D. Incontinentia pigmenti

Q.398 Y — linked inheritance is also called:

A. Holandric inheritance
B. Zigzag inheritance
C. Discriminative inheritance
D. Pseudoautosomal inheritance

Q.399 ___________ never occur in female:

A. Sex linked inheritance
B. X — linked recessive trait
C. Y — linked inheritance
D. X — linked dominant inheritance

Q.400 Following are Y — linked traits of humans, EXCEPT:

A. Hypertrichosis
B. Porcupine man
C. Pattern baldness
D. Webbing of toes

Q.401 Recently discovered Y — linked human trait is:

A. Testis determining factor
B. Porcupine man
C. Webbing toes
D. Hypertrichosis

Q.402 Minor histocompatibility gene shows:

A. X linked recessive inheritance
B. X linked dominant inheritance
C. Y — linked inheritance
D. Pseudoautosomal inheritance

Q.403 A female becomes hemophiliac when she:

A. Inherits hemophilia gene from father
B. Inherits hemophilia gene from mother
C. Inherits hemophilia gene from both parents
D. Inherits hemophilia gene from father and normal gene from mother

Q.404 Following human traits show X — linked recessive inheritance, EXCEPT:

A. Hemophilia — C
B. Hemophilia A and B
C. Color blindness
D. Testicular feminization

Q.405 In X — linked dominant traits a__________ mother may affect the 100% children:

A. Heterozygous dominant
C. Homozygous dominant
B. Homozygous recessive
D. Hemizygous dominant

Q.406 There are___________ types of hemophilia:

A. Two
B. Three
C. Four
D. Five

Q.407 Hemophilia__________ are more common:

A. A and B
B. A and C
C. B and C
D. C and D

Q.408 Which one of the following is called royal disease?
A. Color blindness
B. Rickets
C. Hemophilia
D. Baldness

Q.409 The most common and most severe type of hemophilia is:
A. Hemophilia A
B. Hemophilia B
C. Hemophilia C
D. Hemophilia D

Q.410 Queen Victoria's gene of hemophilia was:
A. Inherited from the mother
B. Inherited from the father
C. Caused by spontaneous mutation
D. Caused by induced mutation

Q.411 Hemophilia B is caused by blood clotting factor numbered as:
A. VIII
B. IX
C. XI
D. VII

Q.412 Persons suffering from the deficiency of blood clotting factor no. VIII, are:
A. 20% of the hemophiliac patients
B. 10% of the hemophiliac patients
C. 1% of the hemophiliac patients
D. 80% of the hemophiliac patients

Q.413 Cases of mild hemophilia A can be treated using a type of medication called:
A. Non-octocog alfa
B. Octocog alfa
C. Desmopressin
D. Vasopressin

Q.414 Which one of the following parents with normal phenotype have probability to produce hemophiliac child?
A. X^hX^H x X^HY
B. X^HX^H x X^hY
C. X^HX^h x X^hY
D. X^HX^h x X^HY

Q.415 When parents have X^hX^h x X^HY genotype, what will be the probability of having hemophiliac kids?
A. 25%
B. 50%
C. 75%
D. 100%

Q.416 The traits inherited from father to son are controlled by:
A. Sex linked genes
B. X — linked genes
C. Y linked genes
D. Autosomal genes

Q.417 Holandric genes are also called as:
A. Homozygous
B. Heterozygous
C. Hemizygous
D. Over dominant

Q.418 All daughter of an affected father will be affected in case of:
A. X linked recessive inheritance
B. X — linked dominant inheritance
C. Y — linked inheritance
D. Pseudoautosomal inheritance

Q.419 No son of an affected father will be affected, if parents have following genotype:
A. X^HX^H x X^hY
B. X^HX^h x X^hY
C. X^HX^h x X^HY
D. X^HX^H x X^HY

Q.420 Females possessing one X — linked recessive mutation are considered:
A. Mutant
B. Affected
C. Normal
D. Carrier

Q.421 Studying inheritance pattern of human genetic disorders like hemophilia is slightly difficult as there is no practical possibility of:
A. Pedigree analysis
B. Experimental mating
C. Inbreeding
D. Outer breeding

Q.422 Pick up the recessive autosomal trait:
A. Haemophilia A
B. Haemophilia C
C. Haemophilia B
D. Red blindness

Q.423 Porcupine man is:
A. Y linked trait
B. X linked dominant trait
C. X linked recessive trait
D. Sex influenced trait

Q.424 X — linked traits are commonly referred as:
A. X— limited traits
B. Sex linked traits
C. Y— linked traits
D. Pseudoautosomal traits

Q.425 Testicular feminization syndrome is an example of:

A. X — linked recessive trait
C. Y— link trait
B. X — linked dominant trait
D. Sex limited trait

Q.426 Haemophilia B is due to abnormality of factor:

A. X
B. VII
C. IX
D. VIII

Q.427 A person was married to his cousin and both are heterozygous for sickle cell anemia. Among their four kids, what will be proportion of affected homozygotes?

A. 50%
B. 25%
C. 75%
D. 100%

Q.428 Chances for a man to be affected by hemophilia C is:

A. Greater than woman
B. Equal to woman
C. Lesser than woman
D. Not predictable

Q.429 A woman can suffer from haemophilia A if she is:

A. Homozygous dominant
B. Heterozygous
C. Homozygous recessive
D. Hemizygous recessive

Q.430 Alleles in an individual for a particular trait is called its:

A. Phenotype
B. Genotype
C. Gene pool
D. Karyotype

Q.431 Keeping in view the Mendel's law of Segregation, if tall plants were crossed with short heighted plants, then which of the following best describe the Fl Progeny?

A. Homozygous and tall heighted
B. Homozygous and short heighted
C. Heterozygous and tall heighted
D. Heterozygous and short heighted

Q.432 An allele is recessive if it is expressed in:

A. F1 generation
B. Homozygous combination & Heterozygous combination
C. Homozygous combination
D. Heterozygous combination

Q.433 When an allele fails to express itself in the presence of another the former is said to be:

A. Epistatic
B. Dominant
C. Recessive
D. Hypostatic

Q.434 Which of the following organism was selected by Mendel to explain laws of inheritance?

A. Homo sapiens
B. *Pisum sativum*
C. *Antitirrhinum*
D. 4 O' clock

Q.435 When a tall pea plant (TT) Is crossed with a dwarf plant (tt), what will be the F2 generation?

A. All tall plants
B. All dwarf plants
C. 3 tall 1 dwarf
D. 3 dwarf 1 tall

Q.436 Which of the following is wrong?

A. Y chromosome contain SRY gene
B. X linked genes are inherited as zig zag
C. Y linked gene like haemophilia passes from father to son
D. X linked recessive genes are carried by females

Q.437 Which of the following human diseases provides an example of sex-linked inheritance?

A. Haemophilia
B. Night blindness
C. Mongolism
D. Beri-beri

Q.438 If a boy's father has haemophilia and his mother has one gene for haemophilia; what is the chance that the boy will inherit the disease

A. 25%
B. 50%
C. 75%
D. 100%

Q.439 Haemophilia is caused by a single

A. Dominant gene in woman
B. Dominant gene in man
C. Recessive gene in man
D. Recessive gene in woman

Q.440 Female rarely experience the physiologic defect of haemophilia because they do so only When they are

A. Heterozygous for the defect B. Homozygous for the defect
C. Carrier for the defect D. Wives of haemophilic husbands

Q.441 Mendel's dihybrid cross ratio is:

A. 3 : 1 B. 9 : 3 : 3 : 1
C. 1 : 1 : 1 : 3 D. 3 : 1 : 1 : 2

Q.442 The number of linkage groups in human:

A. 23 B. 46
C. 92 D. 96

Q.443 All of the following are non-allelic x-linked traits except:

A. Haemophilia A B. Haemophilia B
C. Haemophilia C D. tfm syndrome

Q.444 Percentage of crossing over is more when

A. Genes are located in a different cell
B. Genes are not linked
C. Linked genes are located close to each other
D. Linked genes are located far apart from each other

Q.445 Alleles of different genes that are on the same chromosome can occasionally be separated by a phenomenon called

A. Crossing over B. Continuous variation
C. Epistasis D. Pleiotropy

Q.446 Which of the following characteristics of pea plants was not used by Mendel in his experiments?

A. Seed colour B. Seed shape
C. Pod length D. Flower position

Q.447 Mendel took__________ contrasting characteristics of pea plants.

A. Eight B. Seven
C. Six D. Five

Q.448 The alternate form of a gene is

A. Alternate type B. Recessive character
C. Dominant character D. Allele

Q.449 In a family of four including a normal mother, a normal father, a haemophilic son and a normal son; who do you think which of the following has the defective X gene other than the affected son?

A. The mother B. The normal son
C. The father D. The effected son only

Q.450 Y linked inheritance is __________ inheritance.

A. Criss cross B. Straight
C. Loop D. Jumping

Q.451 The daughter born to haemophilic father and homozygous normal mother could be

A. Normal B. Carrier
C. Haemophilic D. None

Q.452 Gene for eye colour in male drosophila is present on

A. Autosome B. X chromosome
C. Sex Chromosome D. Y chromosome

Q.453 If you cross a red eyed male fruit fly with white eyed female fruit fly, progeny will be

A. All male will be Red Eyed B. All female will be white eyed
C. Both male and female will be red eyed D. Only male will be white eyed

Q.454 Male in fruit fly will be white eyed if

A. Homozygote B. Hemizygote
C. Heterozygote D. None

Q.455 Which haemophilia is autosomal?

A. A B. B
C. C D. D

Q.456 Haemophilia B is due to deficiency of factor

A. VIII
B. X
C. XI
D. IX

Q.457 The law of segregation gives genotypic ratio in F_2 as:

A. 2 : 1
B. 3 : 1
C. 4 : 1
D. 1 : 2 : 1

Q.458 What is the probability that the son of a haemophilic father would bo haemophilic?

A. 0
B. 1/2
C. ¼
D. 1

Q.459 Eye colour of Mutant Drosophila is

A. Blue
B. Red
C. Green
D. White

Q.460 An exception to Mendel's law is

A. Independent assortment
B. Linkage
C. Dominance
D. Purity of gametes

Q.461 A pea plant that is heterozygous for two traits is called a

A. Hybrid.
C. Dihybrid.
B. Dualheterotype.
D. Dualhybrid.

Q.462 As a result of cross-fertilization of true breeding pea plant having purple-colored flowers with that of white colored flowers, the offspring will have flower with:

A.1/4 purple and 3/4 white
B. 1/4 white and 0/4 purple
C. All white
D. All purple

Q.463 Mating between two such parents who differ in two traits only is called

A. self-Cross
B. Monohybrid Cross
C. Pure breeding
D. Dihybrid Cross

Q.464 Seed shape is______________.

A. Genetype
B. Trait
C. Phenotype
D. Round

Q.465 How many different types of gametes will form if genotype is AaBb. Each gamete carries

A. Only recessive-allele
B. Only dominant-allele
C. Only one of the alleles
D. All of-these

Q.466 Each gamete carry

A. Only recessive-allele
B. Only dominant-allele
C. Only one of the alleles
D. All of-these

Q.467 A true breeding variety upon self-fertilization always produces

A. Only recessive offspring
B. Both with ratio 3:1
C. Only Dominant offspring
D. Offspring identical to parents

Q.468 Mutant white in drosophila was discovered by

A. Carl Carrells
B. T. H. Morgan
C. Calvin Bridges
D. Nilsson Ellie

Q.469 The number of types of gametes produced by a homozygous individual is

A. 2
B. 1
C. 4
D. Several

Q.470 During his experiments, Mendel called genes by the term

A. Trait
B. Character
C. Quality
D. Factor

Q.471 If both alleles for one trait are same, then individual is called as

A. Hemizygote
B. Homozygote
C. Heterozygote
D. Heterozygous

Q.472 Two coexisting alleles separate during gamete formation is explanation of Law of

A. Mendel
B. Punnet
C. Independent Assortment
D. Segregation

Q.473 Whose inheritance Is not in zig-zag fashion

A. X linked gene
B. X linked recessive gene
C. Linked dominant gene
D. Y linked gene

Q.474 Sex linked traits include
A. Colour blindness
B. Vit. D resistant rickets
C. Haemophilia
D. All of these

Q.475 In Mendel's Monohybrid cross, how much true breed round are produced in F2 generation
A. 1/4
B. 2.4
C. 3/4
D. 0/4

Q.476 All are part of linkage group 11 except
A. Sickle cell anemia
B. Leukaemia
C. Albinism
D. Haemophilia

Q.477 Position of a gene on the chromosome is called its:
A. Phenotype
B. Locus
C. Primary constriction
D. Genotype

Q.478 Pea plants were particularly well suited for use in Mendel’s breeding experiments for all of the following reasons except:
A. Peas show easily observable variations in a number of characters
B. It is possible to control mating between different pea plants
C. It is possible to obtain large numbers of progeny from any given cross
D. Peas have an unusually long generation time

Q.479 What was the most significant conclusion that G. Mendel drew from his experiments with pea plants?
A. There is considerable genetic variation in garden peas
B. Traits are inherited in discrete units and are not the results of blending’
C. Recessive genes occur more frequently in the F_1 than do dominant ones
D. An organism that is homozygous for many recessive traits is at a disadvantage

Q.480 When crossing an organism that is homozygous recessive for a single trait with a heterozygote, what is the chance of producing an offspring with the homozygous recessive phenotype?
A. 0%
B. 25%
C. 50%
D. 75%

Q.481 The gene for ABO-blood group system in humans is represented by symbol:
A. X
B. Y
C. I
D. O

Q.482 The genes of blue opsins are present on:
A. Autosome 9
B. Autosome 1
C. Autosome 7
D. Autosome 3

Q.483 Blood group AB is an example of __________.
A.Complete dominance
B. Incomplete dominance
C. Co-dominance
D. Recessive alleles

Q.484 Gene for albinism in man is present on chromosome number:
A. 11
B.23
C. 22
D. 12

Q.485 When a disease is transmitted directly from an affected father to his son, it is called:
A. X-linked
B. Y-linked
C. Autosomal
D. X and Y-linked

Q.486 All the alleles present in the gametes of a sexually reproducing population are known as the population’s:
A. Gene frequency
B. Genome
C. Gene pool
D. Genotype

Q.487 An interaction between two alleles having single locus for a single trait can be labeled as:
A. Pleiotropy
B. Dominance
C. Epistasis
D. Polygene

Q.488 Chances for a man to be affected by haemophilia C is:
A. Greater than woman
B. Lesser than woman
C. Equal to woman
D. Not predictable

Q.489 A woman can suffer from hemophilia ‘A’ if she is:
A. Homozygous dominant
B. Homozygousrecessive
C. Heterozygous dominant
D. Hemizygousrecessive

Q.490 If a woman carrier for hemophilia marries a normal man, then:

A. All sons will suffer from hemophilia

B. All daughters will suffer from hemophilia

C. Half sons and half daughters will suffer from hemophilia

D. All statements are incorrect

Q.491 How many colors can be perceived by a monochromat?

A. 1

B. 3

C. 2

D. 4

Q.492 Protanopia is __________ colour blindness.

A. Red

C. Blue

C. Green

D. White

Q.493 All altered alternative forms of a gene, whose number is more than two are called:

A. Co dominant alleles

B. Jumping genes

C. Multiple alleles

D. Homozygous

Q.494 An allele is recessive if it is expressed in:

A. F_1 generation

B. Homozygous combination andheterozygous combination

C. Homozygous combination only

D. Heterozygous combination

Q.495 The haploid chromosome number in pea is:

A. 8

B. 10

C. 7

D. 14

Q.496 Mendel's dihybrid cross ratio is:

A. 3:1

B. 1:1:1:3

C. 9:3:3:1

D. 3:1:1:2

Q.497 Which of the following is not a genetic disorder?

A. Hemophilia

B.Colour blindness

C. Phenylketonuria

D. Epilepsy

Q.498 All of the following are non-allelic X-linked traits in males except:

A. Hemophilia A

B. Hemophilia C

C. Hemophilia B

D. TFM syndrome

Q.499 All of the following are true about Bombay phenotype except:

A. Glycosyltransferases

B. Have I^A or I^B genes

C. Antigen A or B can't adhere to RBCs

D. Genotypically 'O'

Q.500 In the human ABO blood group system, there are six possible genotypes but only four phenotypes. An explanation of this is that ABO blood groups are controlled by:

A. One gene with two alleles

B. One gene with three alleles

C. Two genes with two alleles

D. One gene with one allele

Q.501 A girl has blood group A and her brother has blood group B. Which combination of genotypes cannot belong to their parents?

	Mother	**Father**
A.	I^Ai	I^Bi
B.	I^AI^B	I^AI^B
C.	ii	I^AI^B
D.	ii	I^Ai

Q.502 In a cross AaBb × AaBb, what is the probability of producing the genotype AABB?

A. 1/8

B. 1/16

C. 1/32

D. 1/64

Q.503 The offspring ratio in F_1 generation is 1:1 (Green seeded plants: Yellow seeded plants). What is the genotype of their parents?

A. YY × yy

B. YY × Yy

C. Yy × Yy

D. Yy × yy

Q.504 If Rh+ve woman marries a rh-ve man, what is the probability of their offspring to have negative blood group?

A. 00%

B. 100%

C. 50%

D. 25%

Q.505 The tendency of genes in a chromosome to remain together is called:

A. Segregation
B. Independent assortment
C. Crossing over
D. Linkage

Q.506 A man with blood group B marries a woman with blood group O, which blood group(s) is/are not possible in their children?

A. Blood group A
B. Blood group AB
C. Blood group A and blood group AB
D. All of above groups are possible

Q.507 The genetic cross GgYy × GgYy would yield phenotypic ratio of:

A. 03:01
B. 09:03:04
C. 01:03:01
D. 09:03:03:01

Q.508 Child-I has blood group O and child-II has blood group B and their father has blood group A. What is the genotype of their mother?

A. I^AI^B
B. I^AI^A
C. I^BI^B
D. I^Bi

Q.509 A gene for a trait having three or more allelic forms is called:

A. Dominant allele
B. Recessive allele
C. Multiple allele
D. Heterozygous

Q.510 If a white-eyed male Drosophila is crossed with red-eyed (homozygous), the F1 generation would express:

A. 50% Red eyed and 50% white eyed females
B. 50% Red eyed and 50% white eyed males
C. 100% red-eyed (male as well female flies)
D. Both A and B

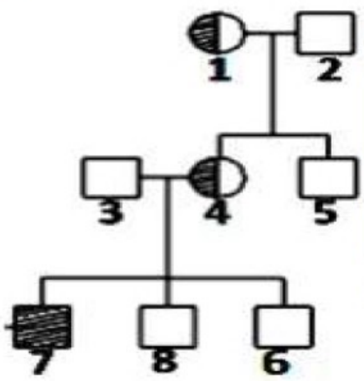
Q.511 In pea plant cross: PpAa × ppaa, the proportion of the offspring will be homozygous for both recessive traits will be:

A. 100%
B. 50%
C. 25%
D. 0%

Q.512 If mother with normal blood clotting gene and father with hemophilia; What are the chances of son to be haemophilic?

A. 0%
B. 25%
C. 50%
D. 100%

Q.513 The below pedigree analysis of a family shows that individual-no. 1 is a carrier of haemophilia. What is the genotype of individual no.6 and 7 respectively?



A. 6= $X^H X^H$, 7= $X^h X^h$
B. 6=X^hY, 7= X^HY
C. 6=X^HX^h, 7= X^hX^h
D. 6=X^HY, 7= X^hY

Q.514 According to product rule, the probability of round yellow phenotype in F2 generation of a dihybrid cross is equal to the product of individualprobabilities of round 3/4 and yellow 3/4 phenotypes that is:

A. 1/16
B. 3/16
C. 6/16
D. 9/16

Q.515 Gene linkage can be detected by performing:

A. Monohybrid cross
B. Test cross
C. Tetrahybrid cross
D. Crossing over

Q.516 If the child has blood type-O and mother has blood type-B, father could not be:

I) Father could not be A II) Father could not be B III) Father could not be AB

A. I only
B. II only
C. III only
D. II or III

Q.517 Find the mismatched row.

Option	Column-I	Column-II
A.	$R^h r^h$	Rh +ve
B.	gg	Green pod in pea plant
C.	$I^A I^B$	AB blood group
D.	$X^h X^h$	Haemophilic female

Q.518 In monohybrid cross, the probability of offspring to inherit dominant phenotype in F1 generation is:

A. 100%
B. 50%
C. 25%
D. 0%

Q.519 The offspring of the RRYY × rryy were:

A. All heterozygous with round yellow
B. All heterozygous with wrinkled green
C. All heterozygous with round yellow and wrinkled green
D. All heterozygous with wrinkled yellow

Q.520 Mendel noted that the recessive character appeared in the F2 generation (of monohybrid cross) in an average ratio of:

A. 1 : 1
B. 1 : 2
C. 4 : 1
D. 3 : 1

Q.521 The dominant allele can be represented by:

A. Capital letter
B. Small letter
C. Bold letter
D. Italic letter

Q.522 The alleles IA and IB are:

A. Completely dominant over i
B. Co-dominant with i
C. Incomplete dominant over I
D. None of these

Q.523 Multiple alleles are produced by:

A. Gene linkage
B. Gene expression
C. Gene mutation
D. None of these

Q.524 A normal man marries a woman who is carrier, what is probability that their children will have haemophilia?

A. 25%
B. 50%
C. 0%
D. 100%

Q.525 Which among the following genotypes refers to dihybrid organism?

A. YYRR
B. yyrr
C. YyRr
D. All are dihybrids

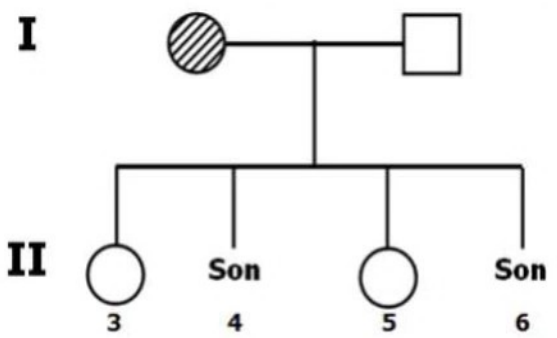
Q.526 If child is of blood type-A and mother is of blood type-O; the possible blood type of father may be:

A. Blood type-B
B. Blood type-A
C. Blood type-O
D. Either blood type-A or blood type-AB

Q.527 If a haemophilic man marries a carrier woman, what are the chances of female children to be haemophilic?

A. 25%
B. 50%
C. 100%
D. 0%

Q.528 Observe the below pedigree of a family showing inheritance of haemophilia.



What is the probability of sons to be haemophilics?

A. 0%
B. 25%
C. 50%
D. 100%

Q.529 Which among the following traits was not used by Mendel in his experiments on pea plant?

A. Pod length
B. Flower position
C. Seed shape
D. Mendel used all of above traits in his experiments.

Q.530 Which one of the following traits is/are dominant in Drosophila?

A. Narrow abdomen
B. White eye colour
C. Vestigial wings
D. None of these

Q.531 International Society of Blood Transfusion has recognized how many major types of blood group systems?

A. 30
B. 80
C. 100
D. 200

Q.532 What is the number of phenotypes of pea seed shape?

A. 2
B. 4
C. 6
D. 7

Q.533 If gene are linked on autosomes, their linkage is said to be:

A. Gene linkage
B. Autosomal linkage
C. Sex linkage
D. Linkage group

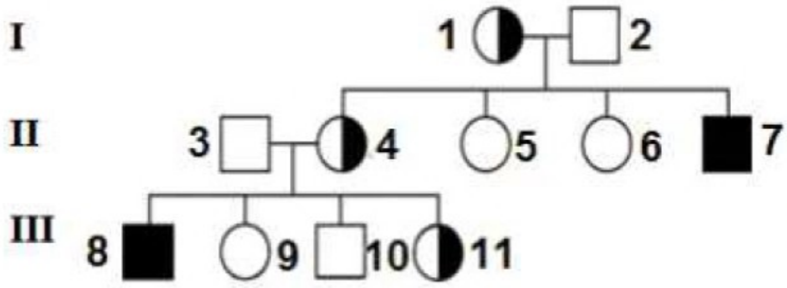
Q.534 Regarding sex-linked recessive inheritance, all female children of an affected father:

A. Will be carriers
B. Will be normal
C. Either A or B
D. None of these

Q.535 Find the odd one out about inheritance.

A. Haemophilia C
B. Haemophilia B
C. Haemophilia A
D. None of these

Q.536 The below pedigree shows inheritance of haemophilia in a family.



From which individual disease is inherited to individual no.8?

A. Individual 3
B. Individual 4
C. Individual 2
D. Individual 1

Q.537 The flower position that is dominant in pea plant is:

A. Axial
B. Terminal
C. Mid
D. None of these

Q.538 A cross between two individual that differ in particular trait is called:

A. Monohybrid cross
B. Dihybrid cross
C. Trihybrid cross
D. None of these

Q.539 The trait that appeared in F1 generation is known as:

A. Dominant trait
B. Recessive trait
C. Either A or B
D. None of these

Q.540 The offspring of F1 generation of true bred purple flowered plant with true bred white flowered plant will produce:

A. All purple flowered plants
B. All white flowered plants
C. More purple flowered plants less white flowered plants
D. More white flowered plants less purple flowered plants

Q.541 Person with blood type-AB can receive blood from:

A. A, O
B. B, O
C. A, B, AB, O
D. O

Q.542 When heterozygous individual for two traits (F1) is crossed with recessive parent (P1), then if all four phenotypes are produced in equal ratio (1 : 1 : 1 : 1); then there would be:

A. Incomplete linkage between genes
B. No linkage between genes
C. Complete linkage between genes
D. None of these

Q.543 A couple has three girls, the percentage probability of 4th child to be girl is:
A. 25%
B. 50%
C. 100%
D. 00%

Q.544 A hybrid is represented by which of the following genotypes?
A. RR
B. rr
C. Rr
D. A, B and C are hybrids

Q.545 In pea plant, heterozygous inflated pod plant is crossed with recessive parent. What is the phenotypic ratio of inflated pod to constricted pod in F1 generation?
A. 3 : 1
B. 1 : 0
C. 1 : 1
D. 1 : 3

Q.546 What is the location of gene of haemophilia?
A. It is located on autosome no.21
B. It is located on X chromosome
C. It is located on Y chromosome.
D. It is located on both X and Y chromosomes

Q.547 If a man with clotting factor marries a haemophilic woman, their sons will be:
A. All haemophilic
B. All normal
C. Half normal, half haemophilic
D. Quarter haemophilic

Q.548 A cross carried out between pure green pod plant and heterozygous plant; the F1 generation shows:
A. 1 Green: 1 Yellow
B. 1 Green: 2 Yellow
C. All green
D. All yellow

Q.549 If father is of blood type O and mother is of blood type AB. What are the possible blood types of their children?
I= A blood group, II= B-blood group, III= AB blood group, IV= O blood group
A. I and II
B. I and IV
C. II and IV
D. III and IV

Q.550 What is the genotype and phenotype of offspring no.3 in below cross regarding haemophilia?

	Mother's genes		
Father's genes		**x^H**	**X^H**
	x^h	**1**	**2**
	Y	**3**	**4**

A. XHY; haemophilic male
B. XHXH carrier female for haemophilic trait
C. XHY; normal male for haemophilic trait
D. X hY haemophilic male

Q.551 Which type of blood can be transfused to an individual whose blood group is not known?
A. AB^+
B. O^+
C. AB^-
D. O^-

Q.552 The cross-Tt X tt would show:
A. 1:1 ratio
B. 3:1 ratio
C. 1:2:1ratio
D. 9:1 ratio

Q.553 Which among the following is heterozygous?
A. R^hR^h
B. R^hr^h
C. r^hr^h
D. A & C

Q.554 In Drosophila, the cross between heterozygous red-eyed female and red-eyed male would produce how many red-eyed females?
A. All red-eyed females
B. Half red-eyed females
C. Quarter red-eyed females
D. 3/4 red eyed females

Q.555 Which one of the following pairs is not a correct pair?
A. heterozygous = Ll
B. tt= hybrid
C. homozygous= AA
D. None of these

Q.556 Father with hemophilia & mother a carrier. Find the correct answer about the offspring of such couple.
I) 100% daughters=normal II) 100% daughters=haemophilic III) 25% sons= haemophilic
A. I only
B. II only
C. III only
D. None of these

Q.557 Females have less chances of haemophilia; it is because of:

A. Homozygous recessive for the defect
B. Heterozygous recessive for the defect
C. Immune to the defect
D. None of these

Q.558 The blood type that is not possible for children of blood type AB father and blood type A mother?

A. A
B. AB
C. O
D. All of above blood groups are possible

Q.559 If a son and father are both hemophiliacs, but the mother is normal, so her genotype:

A. Must be X^HX^h
B. Must be X^hX^h
C. Must be X^HX^H
D. Either A or B

Q.560 ABO blood group system is based upon antigens; if none of these is present then the blood group is:

A. Type AB
B. Type B
C. Type A
D. Type O

Q.561 Two normal parents have haemophilic male child; the genotypes of such parents may be:

A. $X^HX^H \times X^hY$
B. $X^HX^H \times X^H Y$
C. $X^HX^h \times X^HY$
D. None of these

Q.562 The abnormality of blood clotting factor VIII causes:

A. Haemophilia C
B. Haemophilia B
C. Haemophilia A
D. Either A, B or C

Q.563 The disorder, hypophosphatemic rickets is an example of:

A. Y-linked dominant inheritance
B. X-linked dominant inheritance
C. X-linked recessive inheritance
D. Y-linked inheritance

Q.564 Y-linked traits are commonly called:

A. Holandric traits
B. Homoandric traits
C. Heteroandric traits
D. None of these

Q.565 The different breeding experiments with Drosophila were carried out by:

A. Bateson
B. Mendel
C. T.H. Morgan
D. All of these

Q.566 Which one of the following is a recessive trait in pea plant?

A. Inflated pods
B. Purple flowers
C. Axial flowers
D. Yellow pods

Q.567 What is the genotype for carrier female for haemophilia?

A. X^HX^h
B. X^hX^h
C. X^HY^h
D. X^HX^H

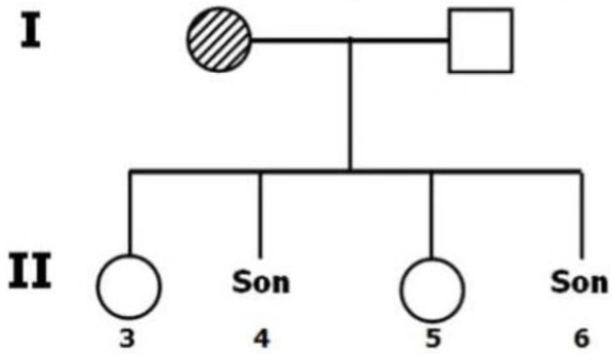
Q.568 What is genotypic ratio for Mendel's monohybrid cross?

A. 1:1
B. 3:1
C. 9:3:3:1
D. 1:2:1

Q.569 Which one of the following is not possible in a cross between heterozygous female and red-eyed male Drosophila?

A. White-eyed female
B. White-eyed male
C. Red-eyed male
D. All of above

Q.570 Observe the below pediqree of a family showinq inheritance of haemophilia.



What is the genotype of individual II-3 and II-5?

A. Both have X^HX^H
B. Both have X^HX^h
C. Both have X^HY
D. Both have X^hY

Q.571 In sickle cell anemia, the abnormal hemoglobin differs from normal hemoglobin in:
A. a single amino acid
B. the amount of coenzymes
C. the number of iron atoms
D. the number of magnesium atoms
E. the number of genes

Q.572 A woman with normal colour vision, whose father was red green colour blind, married a red green colour blind man. What is the probability of her first-born child being red-green colour blind?
A. 1.0
B. 0.75
C. 0.66
D. 0.50
E. 0.25

Q.573 Albinos have a genotype of aa, while all other members of population are either AA or Aa. The offspring of a cross between a heterozygous male and albino female would be
A. 100 % albino
B. 100 % normal
C. 50 % normal, 50 % albino
D. 25 % normal, 75 % albino
E. 75 % normal, 25 % albino

Q.574 A black male mouse (I) is crossed with a black female mouse, and they produce 15 black and 5 white offspring. A different black male mouse (II) is crossed with the same female, and the offspring from the mating are 30 black mice. Which of the following must be true?
A. The female mouse is homozygous
B. Male mouse it is heterozygous
C. Two of the mice are heterozygous
D. All the progeny of mouse II are homozygous
E. All three mice are homozygous

Questions 575 - 576 refer to the following statement:

Father Mother
X(normal) / Y(normal) X(hemophiliA. / X(normal)
With reference to the parents whose genotypes are shown above

Q.575 _______ % of children is likely to be male.
A. 0
B. 25
C. 50
D. 75
E. 100

Q.576 The possibility of a female child with phenotype: hemophilia is _______ %.
A. 0
B. 25
C. 50
D. 75
E. 100

Q.577 If the male blood type A marries a female with blood type B, which of the following types would be impossible for a first-generation child?
A. type B
B. type A
C. type O
D. type AB
E. all types are possible

Q.578 The process of replacing or supplementing the defective allele with a functional, normal allele is known as ______.
A. allele transplant
B. physiotherapy
C. gene therapy
D. mutation
E. cloning

Q.579 In cats, the genes controlling coat-colour are co-dominant (incompletely dominant) and are carried on the X chromosomes. When a black female was mated with a ginger male the resulting litter consisted of black male and tortoise-shell female kittens. What phenotypic ratio would be expected in the F2 generation?
A. 1 black male: 1 ginger male: 2 tortoise-shell females
B. 1 black male: 1 ginger male: 1 tortoise-shell female: 1 black female
C. 2 black males: 1 tortoise-shell female: 1 ginger female
D. 1 black male: 1 tortoise-shell female: 1 ginger female: 1 black female
E. 2 black males: 1 tortoise-shell female: 1 black female

Q.580 Mendel perform his famous experiments of Heredity on:
A. Maize
B. Bean plants
C. Garden pea
D. Mirabilis plant
E. Wheat

Q.581 A man who is normal for color vision marries a normal heterozygous woman. What is the chance of their son being color blind?

A. 0%
B. 25%
C. 50%
D. 75%
E. 100%

Q.582 A red-flowered plant crossed with a white-flowered plant of the same species, produced F1, plants which all had pink flowers. Self-pollination of the F1 plants produced an F2 generation in which 40 plants had red flowers, 80 had pink flowers and 40 had white flowers. What does this experiment demonstrate?

A. Incomplete dominance
B. Continuous variation
C. A dihybrid cross
D. Linkage
E. Multiple alleles

Q.583 Which one of the following genotypes cannot occur amongst the offspring from a mating between a person of blood group A and a person of blood group B?

A. AA
B. AB
C. A
D. B
E. O

Q.584 In fruit flies, the gene for wing type is located on an autosomal chromosome. The allele for wild-type wings is dominant over the allele for vestigial wings. If a homozygous dominant male fly is crossed with a female with vestigial wings, what percentage of their female progeny is expected to have wild-type wings?

A. 0 %
B. 25 %
C. 50 %
D. 75 %
E. 100 %

Q.585 The total aggregate of the genes in a population is called:

A. Gene variation
B. Gene code
C. Gene mutation
D. Gene pool
E. Gene trait

Q.586 If the new born babies get mixed up in a hospital, how could you determine their parentage from the information given below?

Baby I	**Type O**
Baby II	**Type B**
Mrs. Ali	**Type A**
Mr. Ali	**Type AB**
Mrs. Ahmad	**Type A**
Mr. Ahmad	**Type A**

A. Baby I is the child of Mr. and Mrs. Ahmad
B. Baby I is the child of Mr. and Mrs. Ali
C. Baby II is the child of Mr. and Mrs. Ahmad
D. Both Baby I and Baby II are the children of Mr. and Mrs. Ali
E. Inadequate Data

Q.587 The four children of two parents each have a different blood group of the ABO series. What were the blood groups of the parents?

A. A and A
B. A and B
C. A and O
D. B and O

Q.588 In some of Mendel's experiments, three quarters of the offspring showed the dominant trait. Which of the following is most likely to be true about the parents?

A. Both were recessive
B. Both were heterozygous
C. Both were dominant
D. One was heterozygous; the other, homozygous dominant
E. One was recessive; the other,homozygous dominant

Q.589 A species of rose plants can be purchased as red, white, or pink flowering plants. Assuming that large petals is a dominant trait, which is the genotype of a plant with pink flowers and large petals? [W = white flowers, w = red flowers, L = large petals, l = small petals]

A. WwLL
B. WWLL
C. WWLl
D. wwLL
E. wwll

Q.590 According to normal genetic prediction a color-blind girl (Xc XC. must have had a father whose genetic makeup was:

A. $X^c X^c$
B. $X^n Y^c$
C. $X^c Y^c$
D. X Y
E. X^c

Q.591 What are the phenotypes of the parents of a colour blind son and non-carrier daughter with normal colour vision?

	Father	Mother
A.	Carrier	Normal
B.	Colour-blind	Carrier
C.	Carrier	Colour-blind
D.	Normal	Carrier
E.	Normal	Colour-blind

Q.592 Haemophilla is caused by a sex -linked, recessive allele. Two parents have a Haemopiliac son, a normal son a Haemophiliac daughter. What are the most likely genotype of the parents?

Mother	Father	
A. $X^H X^h$	$X^h Y$	
B. $X^H Y^h$	$X^H Y$	
C. $X^h X^h$	$X^H Y$	
D. $X^H Y^H$	$X^h Y$	E. None of the above

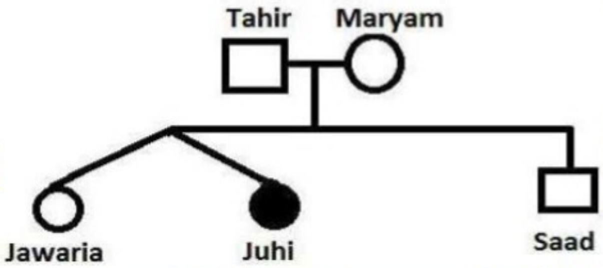
Q.593 When hybrids are crossed, the genotype ratio of the offspring is

A. 1: 1
B. 3: 1
C. 1: 2: 1
D. 4: 1
E. 3: 2: 1

Q.594 Cystic fibrosis patients lack a gene that codes tor a transmembrane carrier of:

A. Na^+ ions
B. K^+ ions
C. Cl^- ions
D. Ca^{2+} ions
E. Mg^{2+} ions

Q.595 In the pedigree of a family shown above, brown eyes are indicated as ○ and blue eyes as ● Jawaria and Juhi are twins. From this chart, it can be determined that:



A. Tahir and Mary are homozygous for brown eyes
B. Jawaria and Juhi are identical twins
C. Juhi is heterozygous for blue eyes
D. Juhi is homozygous for blue eyes
E. Jawaria and Saad are homozygous for brown Eyes

Q.596 Which of the following is an example of discontinuous variation?

A. Range of height of pea plants 30-50 cm
B. Offspring including 2 males and 3 females
C. Pea plants grown in darkness are yellow
D. Adult human weight ranges from 50-95 kg

Q.597 The possible result of crossing between heterozygous (T t) and homozygous dwarf (tt) is.

A. 50% tall and 50% Dwarf
B. 100% tall
C. 100% dwarf
D. 75% tall and 25% dwarf

Q.598 The tendency of gene in chromosomes to remain together is called:

A. Crossing over
B. Synapsis
C. Terminalization
D. Linkage

Q.599 The proportion of different alleles of a gene in a population is termed as:

A. Allele frequency
B. Genetic drift
C. Gene frequency
D. Allelomorph

Q.600 A man with blood group 'A' marries a woman with blood group 'B', child can have

A. A and B
B. B and AB
C. A and AB
D. A, B, AB and O

Q.601 Alleles for which of the following blood groups are always expressed in homozygous condition:

A. A
B. B
C. O
D. AB

Q.602 Physical appearance of a trait can be encoded by:

A. Gene pool
B. One or multiple genes

C. Proteome
D. Genome

Q.603 The blood group which is considered as universal acceptor is:
A. AB^{+}
B. O^{+}
C. O^{-}
D. A^{-}

Q.604 Number of genes involved in formation of hemoglobin of RBC:
A. Four
B. One
C. Three
D. Two

Q.605 An X linked trait that results due to hormonal insensitivity of target cells:
A. Gout
B. Duchene muscular dystrophy
C. Testicular feminization syndrome
D. Color blindness

Q.606 A normal male is married to a normal female (acarrier). Calculate the percentage of their hemophilic grandsons and granddaughters if their carrier daughter is also married to a hemophilic?
A. 100%
B. 50%
C. 75%
D. 0

Q.607 X linked recessive traits are:
A. More common in females than males
B. More common in males than females
C. Equal in both sexes
D. Present only in females

Q.608 Relationships between alleles of ABO blood group system can be explained by:
A. Complete dominance and Co dominance
B. Over dominance and Incomplete dominance
C. Incomplete dominance and Co dominance
D. Complete dominance only

Q.609 ABO blood group system was discovered by:
A. Bernstein
B. Landsteiner
C. Karl Correns
D. Johannsen

Q.610 Hemophilia C is due to disturbance in factor XI. Among all types of hemophilic patients, it accounts for:
A. 20%
B. 80%
C. Less than 1%
D. 50%

Q.611 A person with blood group A has ____________.
A. Only anti B antibodies
B. Only anti A antibodies
C. Both A and B antibodies
D. No anti A and anti B antibodies

Q.612 Which fact is true for a genotype I^AI^A?
A. Homozygous
B. Hemizygous
C. Heterozygous
D. Homomorphic

Q.613 Choose the genotypic ratio among pea plants in F2 generation regarding seed color.
A. 1:2:1
B. 1:3
C. 3:1
D. 1:1:2

Q.614 Crossing over can occur in-between:
A. Homo-morphic, non-homologous, non-sister chromatid
B. Hetero-morphic, non-homologous, sister chromatid
C. Homomorphic, homologous, sister chromatid
D. Hetero-morphic, homologous, non-sister chromatid

Q.615 Law of independent assortment could not be applicable on:
A. Genes present on X chromosome at two distant points
B. Gene present on chromosome 11 and chromosome 12 in close vicinity
C. Genes present on autosomes
D. Genes present on chromosome 22 in close vicinity

Q.616 Alleles from a gene arise by:
A. Genetic drift
B. Natural selection
C. Mutation
D. Non-random mating

Q.617 A normal female whose father was hemophilic with normal color vision is married to a color blindness male. Calculate percentage of progeny who would be affected by these X linked recessive traits:
A. 0 %
B. 50 %
C. 25 %
D. 75 %

Q.618 Deviation of ratio from 9:3:3:1 in F2 of dihybrid cross indicates ___________ between these two genes.
A. Gene linkage
B. Recombination
C. Crossing over
D. Variation

Q.619 An autosomal linked trait:
A. Hypophosphatemic rickets
B. Testicular feminization syndrome
C. Gout
D. Albinism

Q.620 Morgan's classical experiments of Drosophila proved that:
A. Linked genes do not allow crossing over
B. Chromosome play important role in inheritance
C. Genes are present on chromosomes
D. ALL A, B and C

Q.621 If combined probability of a pea seed for two different traits is 9/16 then calculate individual probabilities of each trait:
A. 3/4 & 1/4
B. 1/9 & 3/6
C. 1/4 & 1/4
D. 3/4 & 3/4

Q.622 Which one of the following phenotypic features of man can be affected by the genotype only?
A. Intelligence
B. Number of fingers
C. Skin colour
D. Blood group antigens

Q.623 X linked gene in male is expressed:
A. Due to absence of SRY gene
B. Due to absence of dominant gene
C. Due to absence of recessive gene
D. Whenever present

Q.624 If a gene M has 3 multiple alleles in a plant population, how many of its alleles are present in a spore?
A. 1
B. 3
C. 2
D. Variable

Q.625 Majority of hemophilic patients suffer from deficiency of:
A. Factor VII
B. Factor IX
C. Factor VIII
D. Factor XI

Q.626 Gene for testes development factor is present on:
A. Autosome 7
B. Y chromosome
C. X chromosome
D. Autosome 22

Q.627 Which of the following is the non-allelic disease in human males:
A. Sickle cell anemia
B. Baldness
C. Haemophilia
D. Albinism

Q.628 Genotype ratio of F2 generation of pea plant when P1 round shaped seeds are crossed with P1 wrinkled seeds:
A. 1:2:1
B. 3:1
C. 3:3
D. 4:1:1

Q.629 Which of the following disease will move from generation to generation irrespective of gender:
A. Haemophila
B. Color Blindness
C. Tay-Sachs disease
D. Type-1 Diabetes

Q.630 Which of the following type of disease can move from father to son?
A. Hemophilia-A
B. Hemophilia-C
C. Hemophilia-B
D. Color Blindness

Q.631 They are responsible for producing startling inherited resemblance as well as distinctive variations among generations:
A. Chromosomes
B. Genes
C. Genotypes
D. Nucleotides

Q.632 The observable traits expressed by an organism are referred to as its:
A. Genotype
B. Phenotype
C. Genome
D. Gene pool

Q.633 Allelic pairs are located on:
A. Non homologous chromosomes
B. Y chromosomes
C. Autosomal chromosomes
D. Homologous chromosomes

Q.634 _________ results in production of ________.

A. P_2, F_2
B. F_1, P_1
C. P_1, F_2
D. F_2, P_1

Q.635 In *Pisum sativum* ______________ is dominant over__________

A. Round seed, wrinkled seed
B. Yellow pod, green pod
C. White flower, purple flower
D. Terminal flower, axial flower

Q.636 The location/ physical site of a gene on a chromosome called:

A. Chromatid
B. Kinetochore
C. Locus
D. Allele

Q.637 The blood type which can be transfused to any one is:

A. A-ve
B. B+ve
C. AB-ve
D. O-ve

Q.638 _________ is a relationship between two versions of a gene:

A. Complete dominance
B. Incomplete dominance
C. Co-dominance
D. Over dominance

Q.639 Term gene was first coined by:

A. Gregor Johann Mendel
B. Thomas Hunt Morgan
C. Wilhelm Johannsen
D. Carl Correns

Q.640 *Pisum sativum* was ideal for genetic research due to following characters, EXCEPT:

A. Rapid life cycle
B. Production of lots of seeds
C. Unisexual flowers
D. Sharply distinct traits

Q.641 Mendel selected all of the following pairs of contrasting characters of pea plants for his experiments:

A. Pea colour
B. Flower shape
C. Plant size
D. Pod shape

Q.642 When Mendel crossed a pure breeding round seed shaped plant with a pure breeding wrinkled seed shaped plants, he got _________ seed shaped plants:

A. Pure breeding round
B. Pure breeding wrinkled
C. Heterozygous round
D. Heterozygous wrinkled

Q.643 ________ can also be present in saliva and other body fluids in persons called secretors:

A. Antigen A
B. Antigen B
C. Antigen A and B
D. Antigen AB

Q.644 When both alleles of a gene pair in an organism are different it is called?

A. Homozygous
B. Hemizygous
C. Heterozygous
D. Homologous

Q.645 Independent assortment is applicable to those genes located:

A. On non-homologous chromosomes
B. On homologous chromosomes
C. Different chromosomes
D. Both A and C

Q.646 The trait that expressed in F_1 generation is called:

A. Recessive
B. Dominant
C. Linked
D. Codominant

Q.647 Diploid organisms have _________ at each genetic locus:

A. One allele
B. Multiple alleles
C. Two alleles
D. Two genes

Q.648 More than two versions of a gene which arise by gene mutation are called:

A. Multiple alleles
B. Polygenes
C. Genome
D. Multiple genes

Q.649 When alleles of a trait neither exhibit antagonism nor analogy, it means they have a relation called?

A. Complete dominance
B. Incomplete dominance
C. Co-dominance
D. Over dominance

Q.650 ___________ is a physiological effect of an allele over its partner allele:

A. Epistasis
B. Complete dominance
C. Dominance
D. Incomplete dominance

Q.651 When the phenotype of the heterozygote is intermediate between phenotypes of the two homozygotes, it is called:

A. Over dominance
B. Codominance
C. Incomplete dominance
D. Complete dominance

Q.652 The probability of two independent events occurring together which can be calculated by multiplying the individual probabilities of the events. It is called:
A. Probability
B. Probability Rile
C. Product rule
D. Dominance rule

Q.653 The blood of a person belonging to blood group "O" must have:
A. Antigen A
B. Anti-A and anti-B antibodies
C. Antigen A and B
D. Antigen O

Q.654 Actually the law of independent assortment describes:
A. How different genes dependently separate from one another
B. How different genes independently separate from one another
C. How similar genes independently separate from one another
D. How different genes cross over

Q.655 Blood groups are usually specified due to the presence of:
A. Antigens on WBCs
B. Antigens on RBCs
C. Antibodies in plasma
D. Antibodies in RBCs

Q.656 An organism with two identical alleles is called:
A. Dominant
B. Heterozygous
C. Hybrid
D. Homozygous

Q.657 The sum of all genes, or genetic information carried by a particular species is called:
A. Gene
B. Genome
C. Genotype
D. Gene pool

Q.658 All of the following can be human blood groups, EXCEPT:
A. ABO
B. MN
C. Rh
D. ZW

Q.659 Genes having no fixed loci are called:
A. Linked genes
B. Jumping gene
C. Multiple genes
D. Mutant genes

Q.660 If there is cross between round and yellow with wrinkle and green, the F2 gives wrinkle green:
A. 9/16
B. 3/16
C. 1/16
D. 4/16

Q.661 What would be phenotype of a person with genotype I^AI^B, hh dd?
A. O^{-ve}
B. AB^{-ve}
C. AB^{+ve}
D. O^{+ve}

Q.662 Pick polymorphic gene:
A. H
B. SRY
C. Se
D. I

Q.663 The basic unit of biological information is:
A. Chromosome
B. Locus
C. Gene
D. Allele

Q.664 Partners of a gene pair are called:
A. Chromosome
B. Locus
C. Gene
D. Allele

Q.665 Phenotype and genotype ratios for F2 generation are different in:
A. Complete dominance
B. Codominance
C. Incomplete dominance
D. Over dominance

Q.666 The phenotype of heterozygote is distinct in quality from those of the two homozygotes in:
A. Complete dominance
B. Co-dominance
C. Incomplete dominance
D. Over dominance

Q.667 It develops when both alleles of the same gene in a living being are expressed:
A. Over dominance
B. Codominance
C. Incomplete dominance
D. Complete dominance

Q.668 ABO blood group system was discovered by:
A. Bernstein
B. Morgan
C. Correns
D. Landsteiner

Q.669 Mendel inferred that during gamete formation:
A. Both gene of a alleles are independent to assort
B. Both alleles of a gene are transferred into each gamete

C. Both alleles of a gene are linked with each other
D. Both alleles of a gene separate from each other

Q.670 A gene pair hides the effect of another gene. The phenomenon is called:
A. Segregation B. Co-dominance
C. Over dominance D. Epistasis

Q.671 Phenotype of an organism is the product of:
A. Life style and environment B. Genotype and gene pool
C. Gene pool and lifestyle D. Genotype and environment

Q.672 A child having 'ii' gene on chromosome no.9, can't have a parent with blood group:
A. A B. B
C. AB D. BA

Q.673 Number of homologous chromosomes in Pisum sativum are:
A. Five pairs B. Seven pairs
C. Six pairs D. Eight pairs

Q.674 Pick up hybrid condition:
A. TT B. tt
C. Tt D. TTtt

Q.675 A monohybrid cross yielded 3:1 in F$_2$. What could be mode of inheritance?
A. Segregation B. Independent assortment
C. Both of these D. None of these

Q.676 The gene which controls ABO group has how many alleles in an individual?
A. One B. Three
C. Two D. Four

Q.677 How many genes control Rh blood group system?
A. One B. Three
C. Two D. Four

Q.678 Phenotype represents:
A. Morphology B. Genetics
C. Physiology D. Biochemistry

Q.679 Genes with no fixed locus are called:
A. Temporary genes B. Anonymous genes
C. Jumping genes D. Polymorphic genes

Q.680 Individuals with AB^{+ve} blood type are called:
A. Universal donors B. Heterozygous dominant
C. Homozygous dominant D. Universal recipients

Q.681 The genetic constitution underlying a single trait or set of traits is called:
A. Phenotype B. Genotype
C. Morphology D. Karyotype

Q.682 Genes keeps on hopping on different loci on the same chromosome or other chromosomes called:
A. Polygenes B. Jumping genes
C. Multiple genes D. Mutated genes

Q.683 In human population, ABO blood group may exhibit:
A. Six genotypes B. Four genotypes
C. Three genotypes D. Five genotypes

Q.684 Genotype and phenotype ratio are different in:
A. Over dominance B. Co-dominance
C. Complete dominance D. Incomplete dominance

Q.685 During test cross, if all offsprings are phenotypically dominant then parents are:
A. Homozygous B. Heterozygous
C. One homozygous other heterozygous D. None of these

Q.686 Mendel knew:
A. Something about chromosomes B. Nothing about chromosomes
C. Everything about chromosomes D. Everything about genes

Q.687 Pick up the heterozygous gene:
A. RR B. Rr
C. rr D. YY

Q.688 A DNA sequence that can change its position within a genome:

A. Transposable element
B. Polymorphic genes
C. Jumping gene
D. Both A and C

Q.689 The position of gene on the chromosome called:

A. Location
B. Locus
C. Place
D. Habitat

Q.690 An allele is considered dominant:

A. If it completely masks over the phenotypic effect of its counterpart
B. If its phenotypic effect is completely masked over by its counterpart
C. If its phenotypic effect is partially masked over by its counterpart
D. If it partially masks over the phenotypic effect of its counterpart

Q.691 Mendel first established____________ for each trait:

A. Mutated breeding lines
B. Hybrid breeding lines
C. True breeding lines
D. Mixed breeding lines

Q.692 Pick up the genotype ratio of Mendel's law of independent assortment:

A. 3 : 1
B. 1 : 2 : 1
C. 9 : 3 : 3 : 1
D. None of these

Q.693 According to the Law of Independent Assortment "When two contrasting pairs of traits followed in the same cross:

A. Their chromosomes assort independently into gametes
B. Their genes assort independently into gametes
C. Their alleles assort independently into gametes
D. Their chromatids assort independently into gametes

Q.694 Out of 16 zygotes obtained by Mendel in dihybrid cross, ________ was/were round and green:

A. 1/16
B. 3/16
C. 9/16
D. 0/16

Q.695 In F_2 of dihybrid cross Mendel got wrinkled yellow seeds:

A. 06.25
B. 18.75
C. 37.50
D. 56.25

Q.696 Different alleles of a gene that are both expressed in a heterozygous condition are called:

A. Co-dominance
B. Complete dominance
C. Over dominance
D. Dominance

Q.697 Anti-B antibodies are found in the blood with phenotype:

A. AB
B. A
C. B
D. O

Q.698 The child of O blood group has A blood group father. The genotype of father will be:

A. ii
B. I^AI^B
C. I^BI^B
D) I^Ai

Q.699 The contrasting pairs of alleles for all the seven characters chosen by Mendel showed:

A. Codominance
B. Over dominance
C. Complete dominance
D. Incomplete dominance

Q.700 Heterozygote exceeds in quantity the phenotypic expression of both the homozygotes:

A. Co-dominant
B. Incomplete dominant
C. Over dominant
D. Complete dominant

Q.701 The phenomenon in which two contrasting alleles at the same locus express independently without influencing each other called:

A. Complete dominance
B. Incomplete dominance
C. Codominance
D. Over dominance

Q.702 ABO blood group system is an example of:

A. Polygenes
B. Multiple genes
C. Multiple alleles
D. Multiple mutation

Q.703 It is the chance of an event to occur:

A. Mutation
B. Probability
C. Recombination
D. Product Lille

Q.704 The offspring of ________ always represents the F_2:

A. First parental generation
B. Dominant parent
C. Recessive parent
D. Second parental generation

Q.705 Multiple alleles are produced by:

A. Fertilization
B. Recombination
C. Crossing over
D. Gene mutation

Q.706 Both genotypic and phenotypic ratio as same in:

A. Monohybrid cross with complete dominance
B. Dihybrid cross with complete dominance
C. Monohybrid cross with incomplete dominance
D. Dihybrid cross with incomplete dominance

Q.707 When an Rh^{-ve} female is married to an Rh^{+ve} male. Whose father was also Rh-ve. What will be the percentage of erythroblastosis fetalis in their babies?

A. 0
B. 25
C. 50
D. 100

Q.708 ABO blood system have:

A. Six different genotypes
B. Four different genotypes
C. Three phenotypic expressions
D. Three hundred phenotypic expressions

Q.709 A heterozygote with two phenotypic expressions is possible in:

A. Complete dominance
B. Incomplete dominance
C. Over-dominance
D. Codominance

Q.710 In F_2 of Mendel's dihybrid cross, a phenotype with single genotype was:

A. Round, yellow
B. Round, green
C. Wrinkled, yellow
D. Wrinkled, green

Q.711 A homozygous recessive person for ABO blood type, always has:

A. A blood type
B. B blood type
C. AB blood type
D. O blood type

Q.712 Blood group A can be transfused only into:

A. A recipients
B. B recipients
C. AB recipients
D. A and AB recipients

Q.713 Genetic basis of ABO system was explained by:

A. Landsteiner
B. Watson
C. Mendel
D. Bernstein

Q.714 In which one of the following dominance relations more than two phenotypic expressions are not possible:

A. Complete dominance
B. Incomplete dominance
C. Codominance
D. Over dominance

Q.715 The blood type which can be received by everyone:

A. A^{-ve}
B. B^{+ve}
C. AB^{+ve}
D. O^{-ve}

Q.716 Partner of a gene pair occupying the same gene locus is called:

A. Nucleosome
B. Gene
C. Genome
D. Allele

Q.717 Which one of the following is not applicable to an individual?

A. Genome
B. Jumping gene
C. Gene pool
D. Gene

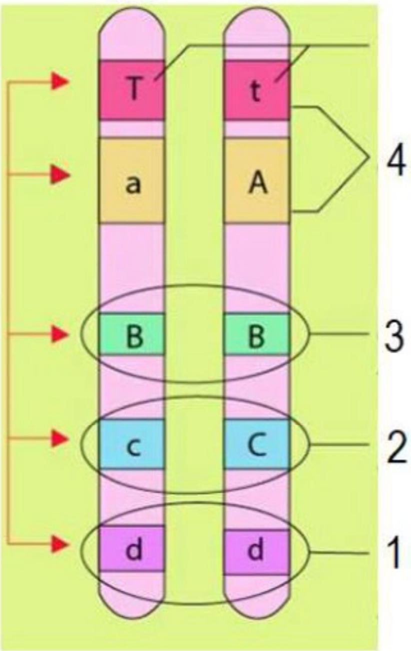
Q.718 Self-fertilization of a true breeding variety will always result in production of:

A. Non parental types
B. Parental types
C. Monohybrid types
D. Dihybrid types

Q.719 The human ABO blood group system exhibits:

A. Complete dominance
B. Incomplete dominance
C. Codominance
D. Over dominance

Q.720 Identify the heterozygous dominant alleles:



A. 1
B. 2
C. 3
D. 4

Q.721 A pure breeding tall pea plant was crossed to dwarf plant what will be the frequency of dwarf plants in F1 :

A. 0.25
B. 0.75
C. 0.50
D. 0.0

Q.722 A pea plant with yellow seed was crossed to a plant having green seeds. What will happen in F1; if plants are true breeding

A. All seeds will be yellow
B. All the seeds will be green
C. Half of seeds will be yellow
D. Both will be present in ratio of 1 : 2 : 1

Q.723 A pure breeding tall plant was crossed to dwarf plant. What would be probability of "Tt" genotype in F_2:

A. 0.25
B. 0.50
C. 0.75
D. 0.00

Q.724 If a heterozygous individual shows the complete effect of both alleles, the type of inheritance would be:

A. Complete dominance
B. Incomplete dominance
C. Non dominance
D. Co-Dominance

Q.725 In nature, Garden pea is:

A. Self-fertilized
B. Cross pollinated
C. Cross fertilized
D. None of these

Q.726 The genes which do not follow law of independent assortment:

A. Crossed genes
B. Recessive genes
C. Linked genes
D. Dominant genes

Q.727 True breeding variety is produced by:

A. Self-fertilization
B. Dihybrid cross
C. Cross fertilization
D. Monohybrid cross

Q.728 Which of the following is universal donor?

A. A
B. AB
C. B
D. O

Q.729 Which one of the following will always be homozygous?

A. A parental trait
B. A non-parental trait
C. A recessive trait
D. A heterozygous trait

Q.730 An organism originated from crossing genetically dissimilar parents is called:

A. True breed
B. Hybrid
C. Fertile
D. Sterile

Q.731 Genes that are likely to be inherited together are called:

A. Autosomal genes
B. Sex linked genes
C. Jumping genes
D. Linked genes

Q.732 Genes that move as a group from generation to generation are located on:
A. Sex chromosomes
B. Autosomes
C. Different chromosomes
D. Same chromosome

Q.733 How many linkage groups are found in human being?
A. 23
B. 46
C. 24
D. 47

Q.734 Frequency of recombination is related to the:
A. Length and width of chromosomes
B. Centromeric position of chromosomes
C. Distance between the genes on the chromosomes
D. Number of the genes on the chromosomes

Q.735 Crossing over is a process that happens between homologous chromosomes in order to:
A. Increase genetic diversity
B. Decrease genetic diversity
C. Enforce gene linkage
D. Enforce sex linkage

Q.736 Which of the following trait is not X-linked?
A. Colour blindness
B. Haemophilia
C. Hypophosphatemia
D. Pattern baldness

Q.737 Haemophilia C is:
A. Sex chromosomal trait
B. Autosomal trait
C. Sex influenced trait
D. Sex limited trait

Q.738 The state of a locus in a diploid organism, where only one copy of the locus is present is called:
A. Homozygous
B. Hemizygous
C. Heterozygous
D. Dizygous

Q.739 Following traits show gender linkage, EXCEPT:
A. Hemophilia A
B. Testicular feminization
C. Hypophosphatemia
D. Hemophilia C

Q.740 Linkage between two genes located on same chromosome is:
A. Inversely proportional to the number of genes on chromosome genes
B. Directly proportional to the number of genes
C. Inversely proportional to the distance between them
D. Directly proportional to the distance between them

Q.741 An inherited bleeding disorder which affects both men and women equally is:
A. Hemophilia A
B. Hemophilia B
C. Hemophilia C
D. Leukemia

Q.742 The tendency of DNA sequences that are close together on a chromosome to be inherited together is called:
A. Crossing over
B. Synapsis
C. Recombination
D. Genetic linkage

Q.743 Deficiency or absence of clotting factors in human blood results in:
A. Color blindness
B. Haemophilia
C. Diabetes
D. Vitamin D resistant rickets

Q.744 Haemophilia A and B are:
A. Y-linked recessive traits
B. X-linked recessive traits
C. Y-linked dominant traits
D. X-linked dominant traits

Q.745 Which one of the following appear more in female?
A. X-linked recessive traits
B. X-linked dominant traits
C. Y-linked traits
D. Sex-limited traits

Q.746 *Drosophila* is perfectly suited for:
A. Metabolic studies
B. Genetic studies
C. Culture studies
D. Behavioural studies

Q.747 Using __________ we can construct a map to represent the distances between genes:
A. Crossover frequencies
B. Parental type frequencies
C. First parental generation
D. Second parental generation

Q.748 It affects both genders, equally:
A. Haemophilia C
B. Haemophilia A
C. Haemophilia B
D. Classical hemophilia

Q.749 Sex linkage in *Drosophila* was discovered by:

A. Carl Correns
B. Gregor John Mendel
C. Alfred Sturtevant
D. Thomas Hunt Morgan

Q.750 Which one of the following can never pass direct from father to son?

A. Haemophilia A and C
B. Haemophilia B and C
C. Haemophilia C and D
D. Haemophilia A and B

Q.751 Probability of crossing over between two genes is:

A. Directly proportional to the distance between them
B. Inversely proportional to the distance between them
C. Directly proportional to the size of chromosome carrying them
D. Inversely proportional to the size of chromosome carrying them

Q.752 Absence or deficiency of factor XI results in:

A. Haemophilia — B
B. Haemophilia — C
C. Haemophilia — A
D. Classical hemophilia

Q.753 Pick up the genotype, having equal probability of normal and affected babies, irrespective of gender:

A. $X^HX^h \times X^hY$
B. $X^HX^H \times X^hY$
C. $X^HX^h \times X^HY$
D. $X^HX^H \times X^HY$

Q.754 Which one of the following linkage group in humans is associated with sex linkage as well?

A. 23rd
B. 22nd
C. 11th
D. 12th

Q.755 ____________is not practically possible in humans:

A. Experimental mating
B. Pedigree analysis
C. Study of inheritance
D. Outbreeding

Q.756 Each type of haemophilia involves deficiency of:

A. Same clotting factor
B. Specific clotting factors
C. Specific chromosome
D. Same chromosome

Q.757 Hemophilia with intermediate frequency is:

A. Hemophilia A
B. Hemophilia B
C. Hemophilia C
D. Classical hemophilia

Q.758 The first victim of hemophilia in human history

A. Queen Victoria
B. Princess Alice
C. Prince Leopold
D. King Charles

Q.759 First carrier of hemophilia in human history was:

A. Prince Leopold
B. Prince Tsar
C. Princess Alex
D. Queen Victoria

Q.760 Haemophilia A and B as disorders always pass from:

A. Father to son
B. Father to daughter
C. Maternal grandfather to grandson
D. Paternal grandfather to grandson

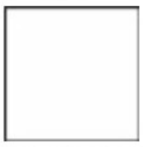
Q.761 Which one of the following is called classical hemophilia?

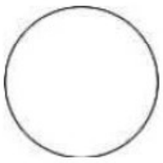
A. Hemophilia A
B. Hemophilia B
C. Hemophilia C
D. Mild hemophilia

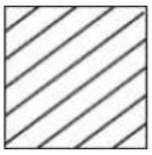
Q.762 A normal women cannot have:

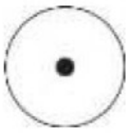
A. Hemophiliac son
B. Normal son
C. Carrier daughter
D. Normal daughter

Q.763 Pick up the sign denoting carrier daughter:

A.


C.


B.


D.


Q.764 Crossing over reduces the chances of:

A. Meiosis
B. Recombination
C. Variation
D. Gene linkage

SKN

Q.765 A female can be haemophiliac, if her parents have following genotype:
A. $X^HX^H \times X^HY$
B. $X^HX^H \times X^hY$
C. $X^HX^h \times X^hY$
D. $X^HX^h \times X^HY$

Q.766 Haemophilia is a/an:
A. X - linked dominant trait
B. Y- linked dominant trait
C. X - linked recessive trait
D. Y- linked recessive trait

Q.767 Minor cuts or bruises may result in death of a person when he/she suffers from:
A. Hypophosphatemia
B. Protanopia
C. Hemophilia
D. Immunodeficiency

Q.768 The percentage of haemophiliacs suffering from type — B is:
A. 10%
B. 80%
C. 20%
D. 30%

Q.769 A haemophiliac man receives X chromosome directly from his:
A. Father's father
B. Mother's father
C. Father
D. Mother

Q.770 Queen Victoria's carrier daughter was princess:
A. Alex
B. Alice
C. Diana
D. Elizabeth

Q.771 Mode of inheritance of human traits can be traced through:
A. Experimental mating
B. Pedigree analysis
C. Inbreeding
D. Out breeding

Q.772 The pattern of inheritance observed for alleles in the X-Y identical regions is referred to as:
A. Autosomal inheritance
B. Pseudoautosomal inheritance
C. Sex linked inheritance
D. X-linked inheritance

Q.773 Strength of gene linkage is inversely proportion to the following, EXCEPT:
A. Distance between gene loci
B. Probability of crossing over
C. Probability of independent assortment
D. Probability of retaining parental traits

Q.774 Morgan and his colleagues studied more than traits in *Drosophila*:
A. 85
B. 60
C. 90
D. 8

Q.775 Pick up the most common type of haemophilia:
A. A
B. B
C. C
D. D

Q.776 A carrier female can produce following kids, EXCEPT:
A. Affected daughter
B. Normal son
C. Normal daughter
D. Affected son

Q.777 Just one recessive allele will display the trait of __________ in man:
A. Haemophilia A and C
B. Haemophilia B and C
C. Haemophilia C and tritanopia
D. Haemophilia A and B

Q.778 Zigzag inheritance is a feature of:
A. X-Iinked traits
B. Y-linked traits
C. Autosomal traits
D. Sex influenced traits

Q.779 Linkage group of X-chromosome is:
A. Color blindness, leukemia and albinism
B. Haemophilia, sickle cell anemia and albinism
C. Gout, albinism and leukemia
D. Color blindness, haemophilia and gout

Q.780 Vitamin D resistant Rickets is:
A. A X-linked recessive trait
B. A X-linked dominant trait
C. A Y-linked recessive trait
D. A Y-linked dominant trait

Q.781 It is basic unit of biological information:
A. DNA
B. Gene
C. Allele
D. Gamete

Q.782 Which one of the following does not have a fix locus?
A. Polygenes
B. Multiple alleles
C. Pleiotropic gene
D. Jumping gene

Q.783 Transposons are capable of moving from one site in DNA sequence to other mostly:
A. On same chromosome
B. On homologous chromosomes
C. Randomly
D. On non-homologous chromosomes

Q.784 Seed shape in pea plant is:
A. Trait
B. Phenotype
C. Genotype
D. Genome

Q.785 The organism chosen by G. Mendel to explain the laws of inheritance was:
A. *Homo sapiens*
B. *Pisum sativum*
C. *Antirrhinum majus*
D. *Drosophila melanogester*

Q.786 Which of the following are dominant characters according to Mendel?
A. Green colored pod and rounded seeds
B. Terminal fruit and wrinkled seeds
C. Yellow pod color and short stem height
D. White flower color and terminal flower position

Q.787 In Mendel's experiment, nature of seed coat, flower colour, position of flower, pod colour, stem height, etc. are referred to as:
A. Alleles
B. Phenotypes
C. Genotypes
D. Traits

Q.788 In Mendel's monohybrid cross, what percentage of round seed plants were produced by F1 heterozygous round on self-fertilization?
A. 25%
B. 50%
C. 75%
D. 100%

Q.789 In order to explain the mode of inheritance of characters through successive generations, Mendel proposed that the two alternative factors for each character become separated during the formation of gametes and each factors has an equal chance of being transferred to offsprings. This phenomenon is known as:
A. Law of independent assortment
B. Law of incomplete dominance
C. Law of segregation
D. Law of co-dominance

Q.790 According to Mendel's monohybrid cross, the characters which appears in F1 is said to be:
A. Recessive
B. Co-recessive
C. Dominant
D. Partially dominant

Q.791 What will be the probability of a round green seed in a dihybrid cross if the independent probability of a round seed is 3/4 and green seed is 2/4?
A. $\frac{5}{8}$
B. $\frac{6}{8}$
C. $\frac{3}{16}$
D. $\frac{6}{16}$

Q.792 The pedigree shows the occurrence of albinism which is a recessive trait. If person 4 is homozygous, the carrier for the trait is:
A. 1, 4, 5 and 6
B. 1, 2 and 3
C. 5 and 6
D. 1, 2, 5 and 6

Q.793 How many types of gametes are produced by an organism with genotype of 'AaBB'?
A. 1
B. 2
C. 3
D. 4

Q.794 _____________ is a physiological effect of an allele over its partner allele on same gene locus.
A. Epistasis
B. Dominance
C. Bombay phenotype
D. Gene linkage

Q.795 The phenotype of heterozygote exceeds in quantity as compared to homozygotes in case of:
A. Complete dominance
B. Incomplete/partial dominance
C. Co–dominance
D. Over–dominance

Q.796 A gene showing co-dominance has:
A. Alleles tightly liked on the same chromosome
B. Alleles those are recessive to each other
C. Both alleles independently expressed in the heterozygote
D. One allele dominant on the other

Q.797 If a trait is controlled by two or more than two genes, then such genes are called as:
A. Multiple alleles
B. Pleiotropic genes
C. Polygenes
D. Continuously varying traits

Q.798 A mother of blood group 'O' has child with blood group 'O'. The blood group of father could be:
A. 'A' or 'B'
B. 'O' only
C. 'AB' only
D. 'A' or 'B' or 'O'

Q.799 If a child has O type of blood group and the father has B type, then the genotype of the father will be:
A. $i\,i$
B. $i\,I^B$
C. I^AI^B
D. I^BI^B

Q.800 These are not found in blood of a normal person having A positive blood group:
A. An antigens
B. Anti-B antibodies
C. Rh antigens
D. Anti-Rh antibodies

Q.801 Mendel's law of independent assortment is applicable for:
A. All genes in all organisms
B. All linked genes only
C. All genes of pea plant only
D. All non-linked genes only

Q.802 Number of linkage group in Pisum sativum is:
A. 2
B. 7
C. 5
D. 9

Q.803 Physical association of two genes is known as:
A. Heterozygosis
B. Recombination
C. Linkage
D. Homozygosis

Q.804 Which of the following is a physical relation between genes?
A. Dominance
B. Epistasis
C. Gene linkage
D. Pleiotropy

Q.805 Genes for which of the following form a linkage group on chromosome 11?
A. Leukemia, Albinism
B. Hemophilia, Gout
C. Gout, Sickle cell anemia
D. Color blindness, Hemophilia

Q.806 Crossing over occurs in:
A. Mitotic cells
B. Meiotic cells
C. Amitotic cells
D. Mutating cells

Q.807 Transfer of genes from one chromosome to another and vice versa during synapsis is called:
A. Chiasmata
B. Translocation
C. Transposons
D. Crossing over

Q.808 Crossing over occur during:
A. Diplotene
B. Leptotene
C. Pachytene
D. Diakinesis

Q.809 Genes can be mapped on a chromosome on the basis of their:
A. Tetrad formation
B. Location of jumping genes
C. Chiasmata formation
D. Recombination frequencies

Q.810 There are 80% parental and 20% recombinant in a cross. Its recombinant frequency is:
A. 10%
B. 20%
C. 40%
D. 80%

Q.811 XXY set of chromosomes in Drosophila produces
A. Fertile Female
B. Klinefelter's Syndrome
C. Sterile female
D. Sterile Male

Q.812 Chromosomal combination of a person with tfm syndrome is:
A. XO
B. XY
C. XX
D. XYY

Q.813 Gene for blood clotting factor XI is located on:
A. X chromosome
B. Y chromosome
C. Autosome
D. Both X & Y chromosomes

Q.814 Partially functional opsins are present in
A. Protanopia
B. Deuteranopia
C. Red green colorblindness
D. Protanomalous

Q.815 Gene for formation of blue opsins is located on:
A. Chromosomes X
B. Chromosome Y
C. Chromosome # 7
D. Chromosome X and Y

Q.816 Weak perception of green colour is:
A. Protanopia
B. Protanomalous
C. Deuteranopia
D. Deuteranomalous

Q.817 A person having recessive alleles for blue opsins on autosome 7 can perceive:
A. Blue color
B. Red and green colors
C. All three primary colors
D. Red and blue colors

Q.818 A normal woman whose father was red-blind marries a red-blind man. What proportion of their children can have normal colour vision?
A. 25%
B. 75%
C. 50%
D. 100%

Q.819 Hypophosphatemic rickets is due to a protein defect that does not respond to vitamin D signal. This protein is located on:
A. Liver cells
B. Bone cells
C. Intestinal cells
D. Skin cells

Q.820 All of the followings can be a cause of rickets except:
A. Gene mutation
B. Lower calcium in diet
C. Lack of vitamin D
D. X linked recessive allele

Q.821 All of the following are true about alleles except:
A. They are always identical
B. They control same trait
C. Present on respective homologue
D. Can be expressed independently

Q.822 Genetic make-up of a trait is called:
A. Phenotype
B. Genotype
C. Genome
D. Gene pool

Q.823 A pair of gene controlling a trait is called:
A. Factor
B. Alleles
C. Paramorphos
D. Allolocus

Q.824 Two allelic genes are located on:
A. The same chromosomes
B. Two non-homologous chromosomes
C. Two homologous chromosomes
D. Any two chromosomes

Q.825 _________ is the basic unit of biological information:
A. Gamete
B. Chromosome
C. DNA
D. Gene

Q.826 The haploid chromosome number in pea is:
A. 8
B. 7
C. 10
D. 14

Q.827 Which of the following is considered as a recessive character of Mendel?
A. Green pod color
B. Round seed shape
C. Axial flower position
D. Wrinkled seed shape

Q.828 Mendel named the particulate heredity factors, that controlled a particular phenotype as:
A. Genes
B. Alleles
C. Elementen
D. Traits

Q.829 Mendel's law of segregation was based on the separation of alleles in the garden pea during:
A. Pollination
B. Seed formation
C. Gamete formation
D. Embryonic development

Q.830 In dihybrid cross, out of 16 plants obtained, the number of genotypes will be:
A. 4
B. 9
C. 16
D. 12

Q.831 Albinism is a_________ trait.
A. Autosomal dominant
B. Autosomal recessive
C. Sex-linked dominant
D. Sex-linked recessive

Q.832 Dominance is physiological effect of an allele over its partner allele occupying:
A. Same locus on same chromosome
B. Same locus on respective homologue
C. Different locus on same chromosome
D. Different locus on respective homologue

Q.833 The trait which appeared in F1 mono hybrid pea plants was named by Mendel as?
A. Dominant B. Recessive
C. Co-dominant D. Incompletely dominant

Q.834 An allele is said to be dominant if:
A. It is expressed only in heterozygous combination
B. It is expressed only in homozygous combination
C. It is expressed in both homozygous and heterozygous condition
D. It is expressed only in second generation

Q.835 It acts as universal recipient:
A. AB +ive B. AB –ive
C. O -ive D. O +ive

Q.836 How many alleles of ABO blood group are present in an individual?
A. 1 B. 3
C. 2 D. 300

Q.837 Inheritance of ABO blood group system is an example of:
A. Multiple allelism B. Epistasis
C. Partial dominance D. Dominance

Q.838 Which of the followings gene is not involved in Rh blood group system?
A. C B. E
C. D D. H

Q.839 The recombination frequencies between two linked genes can be calculated by backcrossing ______________ to ______________.
A. Heterozygote, Heterozygote
B. Heterozygote, homozygous single recessive
C. Homozygous double recessive, Heterozygote
D. Homozygous single recessive, homozygous double recessive

Q.840 The traits whose genes are located on X-chromosomes are:
A. Sex linked traits B. Sex limited traits
C. Sex controlled traits D. Sex influenced traits

Q.841 It is an example of X-linked dominant trait and occur more in females as compared to the males:
A. Hemophilia B. Color blindness
C. Vit. D resistant rickets D. Lesch-Nyhan syndrome

Q.842 Hemophilia B is due to absence or abnormality of blood clotting factor:
A. VIII B. IX
C. X D. XI

Q.843 Women with normal colour vision whose father was red-green colour blind married a red-green colour blind man. What is the probability of her first-born child being red-green colour blind?
A. 1.0 B. 0.75
C. 0.66 D. 0.50

Q.844 Which of the following is X-linked dominant trait in humans?
A. Hemophilia A B. Vitamin D resistant rickets
C. Red-green colour blindness D. Testicular feminization syndrome

Q.845 Hypophosphatemic rickets is due to:
A. Deficiency of vitamin D in food B. Deficiency of calcium in food
C. Deficiency of phosphate in food D. Absence of protein receptor

Q.846 Which one is mismatched?
A. Haemophilia C – autosomal B. Blue opsin - autosome 7
C. tfm – X chromosome D. Pattern baldness – X linked

Q.847 Which of the following is true for pattern baldness?
A. Heterozygous male is not bald B. Heterozygous female is bald
C. It is dominant in male D. It is dominant in female

Q.848 Gene linkage can be broken by:
A. Crossing over B. Synapsis
C. Recombination D. Gene linkage

SKN

Q.849 All of the genes on a single chromosome constitute:
A. A linkage group
B. A genome
C. A gene pool
D. A genotype

Q.850 Gene linkage minimizes the chances of following genetic processes, EXCEPT:
A. Crossing over
B. Recombination
C. Variation
D. Genetic continuity

Q.851 Group of genes located on 23rd pair of chromosomes, inherit according to the principles of:
A. Gene linkage
B. Sex linkage
C. Independent assortment
D. Segregation

Q.852 A normal man never produces:
A. Hemophiliac son
B. Normal son
C. Hemophiliac daughter
D. Normal daughter

Q.853 Establishing the location of genes on chromosome is called:
A. Gene linkage
B. Gene sequencing
C. Gene mutation
D. Gene mapping

Q.854 The consequence of crossing over is:
A. Chiasma formation
B. Recombination
C. Synapsis
D. Desynapsis

Q.855 Following processes provide raw material for evolution, EXCEPT:
A. Mutation
B. Variation
C. Recombination
D. Gene linkage

Q.856 In a human population, Hemophilia exhibit:
A. Discriminative inheritance pattern in favour of
B. Discriminative inheritance pattern in favour of women
C. Exclusive inheritance pattern in favour of men
D. Exclusive inheritance pattern in favour of women

Q.857 When Mendel observed an "Independent assortment of traits" he was fortunate to have chosen:
A. Traits that were not localized close to one another on the same chromosome
B. Traits that were localized close to one another on the same chromosome
C. Traits that were localized on different chromosome
D. Traits that were not localized on different chromosome

Q.858 These are more common in female than male:
A. Y-linked recessive traits
B. Sex influenced traits
C. X-linked dominant traits
D. X-linked recessive traits

Q.859 Pick up the most common type of haemophilia:
A. A
B. B
C. C
D. D

Q.860 Which one of the following was first introduced as royal disease?
A. Colour blindness
B. Hypophosphatemia
C. Diabetes
D. Haemophilia

Q.861 The test cross for detection of linkage is somewhat different from regular test cross, as:
A. In regular test cross genotypes of both parents are not known
B. In test cross for detection of linkage, genotypes of both parents are not known
C. In regular test cross, genotypes of both parents are known
D. In test cross for detection of linkage, genotypes for both parents are known

Q.862 When a normal girl marries a hemophiliac boy, their children may have potentially following genotypes, EXCEPT:
A. Hemophiliac sons
B. Normal sons
C. Carrier daughter
D. Normal daughter

Q.863 What is being detected from the progeny of following test cross?
Test Cross: One horn, Wrinkled knees X Two horns, Smooth knees
(AaCc) **(aacc)**

The test cross progeny in this example are:		
Phenotype	**Observed Freq.**	**Genotype**
One horn, Wrinkled knees	**.40**	**AaCc**
One horn, Smooth knees	**.10**	**Aacc**
Two horns, Wrinkled knees	**.10**	**aaCc**
Two horns, Smooth knees	**.40**	**aacc**

A. Independent assortment
B. Genetic linkage
C. Sex linkage
D. Segregation of alleles

Q.864 The condition in which the inheritance of a specific gene is coupled with that of another gene is called:
A. Crossing over
B. Synapsis
C. Linkage
D. Recombination

Q.865 In Drosophila, white eyed mutant was first detected by:
A. T.H Morgan
B. Carl Correns
C. De varies
D. Calvin Bridges

Q.866 If a carrier female for haemophilia is married to a normal male, then all of the following combination can exist, EXCEPT:
A. X^HY
B. X^HX^H
C. X^hY
D. X^hX^h

Q.867 "Christmas disease" is an alternate name for:
A. Hemophilia A
B. Hemophilia B
C. Hemophilia C
D. Classical hemophilia

Q.868 Zigzag inheritance is the characteristic of:
A. X-Iinked recessive traits
B. X-Iinked dominant traits
C. All types of sex linked traits
D. Y-linked traits

Q.869 All the three types of hemophilia are:
A. X-Iinked recessive traits
B. X-Iinked dominant traits
C. Y -linked traits
D. Inherited traits

Q.870 The most prevalent category of hemophilia have following names, EXCEPT:
A. Hemophilia A
B. Classical hemophilia
C. The ville brand syndrome
D. Christmas disease

Q.871 Factor XI deficiency in human blood can also be called as follows, EXCEPT:
A. Haemophilia C
B. Plasma thromboplastic antecedent
C. Rosenthal syndrome
D. Fibrin stabilizing factor

Q.872 In a human population, the chances for a female to suffer from hemophilia A or B are theocratically:
A. 1/3
B. 2/3
C. 1/4
D. 2/4

Q.873 All sons of a hemophiliac father will be normal, if his wife is:
A. Carrier
B. Normal
C. Hemophiliac
D. Heterozygous

Q.874 People with ___________ bleed longer than other people:
A. Hemophilia A
B. Hemophilia B
C. Hemophilia C
D. Christmas disease

Q.875 A normal woman, whose father was haemophilic marries a haemophilic man, what proportion of their children to be normal?
A. 100%
B. 33%
C. 25%
D. 50%

Q.876 The chances of variation are minimized by:
A. Sex-linkage
B. Gene linkage
C. Crossing over
D. Recombination

SKN

Q.877 All the genes present on a homologous pair of chromosomes are:
A. Independent to assort
B. Linked to each other
C. Independent to remain together
D. Transferred to different individuals

Q.878 A powerful tool to detect the chromosomal location of disease gene is:
A. Genetic linkage analysis
B. Genome sequencing
C. Gene pool analysis
D. Genome analysis

Q.879 The only possibility of separation of linked genes is through:
A. Crossing over
B. Linkage
C. Variation
D. Chiasma formation

Q.880 Which one of the following is a lethal hereditary disease?
A. Color blindness
B. Hypophosphatemia
C. Hemophilia
D. Testicular feminization

Q.881 Short regions of homology between mammalian X and Y chromosomes are called:
A. Autosomal regions
B. Pseudoautosomal regions
C. Sex chromosomal regions
D. Sex influenced regions

Q.882 Theoretical probability of a male to be hemophiliac is:
A. 25%
B. 50%
C. 75%
D. 100%

Q.883 Zigzag inheritance pattern is also called as:
A. Criss-cross inheritance
B. Mendelian inheritance
C. X-linked inheritance
D. Pseudoautosomal inheritance

Q.884 Strength of gene linkage is:
A. Directly proportional to the distance between gene loci
B. Inversely proportional to the distance between gene loci
C. Directly proportional to the size of the genes
D. Inversely proportional to the size of the genes

Q.885 Testis determining factor is:
A. A X-linked recessive trait
B. A X-linked dominant trait
C. Recently discovered Y-linked trait
D. Already discovered Y-linked trait

Q.886 Harry pinna is an example of:
A. Y-linked trait
B. X-linked dominant trait
C. X-linked recessive trait
D. Autosomal trait

Q.887 A man having straight hair on body is called:
A. Holandric man
B. Porcupine man
C. Tetrachromatic man
D. Gosse bumps man

Q.888 Reduction in factor number XI results in:
A. Hemophilia A
B. Hemophilia B
C. Sex linked hemophilia
D. Autosomal hemophilia

Q.889 Testicular feminization is an example of:
A. X-linked dominant trait
B. Y- linked dominant trait
C. Autosomal inheritance
D. X-linked recessive traits

Q.890 Queen Victoria who became Queen of England in 1837 transmitted the allele of hemophilia to following ruling families, EXCEPT:
A. Ruling family of Japan
B. Ruling family of Russia
C. Ruling family of Spain
D. Ruling family of Germany

Q.891 The phenomenon in which phenotypic expression of an allele is dependent on gender of the individual, is called:
A. Gene linkage
B. Sex linkage
C. X-linked inheritance
D. Y -linked inheritance

Q.892 _________ is a very severe type of haemophilia:
A. A
B. B
C. C
D. D

Q.893 Reasons for selection of Drosophila for genetic research included all of the following, EXCEPT:
A. Easy collection and culturing
B. Short generation time
C. Excellent for genetic studies
D. Very much diversity in traits

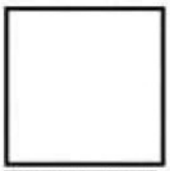
Q.894 What is the probability that a male will inherit an X-linked recessive gene from his father?

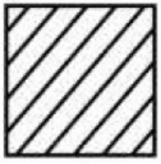
A. 0 percent
B. 25 percent
C. 50 percent
D. 75 percent

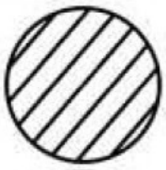
Q.895 The law of independent assortment is not followed by the:

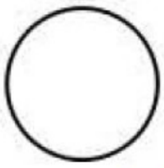
A. Linked genes whose loci are farther from each other
B. Linked genes whose loci are closer to each other
C. Genes located on same homologous pair of chromosomes
D. Genes present in the same genome

Q.896 Pick up the affected male from the following:

A)


B)


C)


D)


Q.897 Drosophila has a generation time of just for:

A. Two weeks
B. Two months
C. Two years
D. 5 weeks

Q.898 Dominant gene for tallness is 'T' and for yellow colour is 'Y'. A plant heterozygous for both the trait is self fertilized, then the ratio of pure homozygous dwarf and green offspring would be:

A. 1/4
B. 3/16
C. 1/16
D. 3/8

Q.899 Epistatic gene differs from dominant gene is:

A. Epistatic genes is non-allelic
B. Epistatic and hypostatic genes are present at different loci
C. Epistatic gene never expresses itself independently
D. All A, B, C

Q.900 A pleiotropic gene is one which:

A. Affect one character
B. Regulates the gene expression
C. Affect more than one character
D. Requires another gene for expression

VARIATIONS AND GENETICS
From PMC PRACTICE PAPERS

Mendel's law of inheritance

Q.901 How many pairs of homologous chromosomes are present are present in Pisum sativum?

A. 5
B. 6
C. 7
D. 8

Q.902 A certain type of plant is only tall when it has a heterozygous genotype. If two heterozygous plants are crossed, what is the probability of their offspring will also be tall?

A. 25%
B. 1
C. 50%
D. 75%

Q.903 A pure breeding tall pea plant was crossed to dwarf plant. What will be the frequency of dwarf plants in F_2?

A. 0.25
B. 0.5
C. 0
D. 1

Q.904 Phenotypic ratio of F_2 generation of monohybrid cross:

A. 3:1
B. 9:3:3:1
C. 1:2:1
D. 9:1

Q.905 What is the phenotypic ratio for a cross between a plant with blue flowers BB and a plant with white flowers bb?

A. 25% blue, 75% white
B. 75% blue, 25% white
C. All white
D. All blue

Q.906 Composite of an organism's observable characters or traits is called:

A. Genotype
B. Phenotype
C. Recombination
D. Replication

Q.907 In a dihybrid cross, what fraction of offspring will be homozygous for both traits?

A. l/2
B. 1/4
C. 1/8
D. 1/16

Q.908 Genotype ratio of Mendel's law of independent assortment is which of the following?

A. 3:1
B. 1:02:01
C. 9:3:3:1
D. None of these

Q.909 Your neighbour has a flower garden in which there are red flowers and white flowers. These flowers are diploid organisms, and flower colour is an autosomal trait. The gene for red flowers (R) is dominant, while the gene for white flowers (r) is recessive. Which of the following is the genotype of a white flower?

A. RR
B. rr
C. Rr
D. Rr

Q.910 Which of the following is heterozygote?

A. RR
B. rr
C. Both A & B
D. None of these

Q.911 Which of the following represents a phenotype?

A. X-linked recessive
B. Aa
C. Autosomal dominant
D. Brown hair

Q.912 Homozygous chromosomes include which of the following?

A. Diploid cells
B. Polyploid cells
C. Both A and B
D. None of these

Q.913 One plant is homozygous dominant for purple flowers, and the other is homozygous recessive for white flowers. What fraction of the F2 population will have white flowers?

A. 1/4
B. 1/2
C. 1/8
D. 1/16

Q.914 A monohybrid cross yielded 3:1 in F2. What could be mode of inheritance?

A. Segregation
B. Independent assortment
C. Both A and B
D. None of these

Q.915 In peas, the gene for yellow color (C) is dominant to the gene for green color (c). To determine the genotype of an unknown pea, what kind of kind of pea should you cross with it?

A. Another unknown green
B. Any genotype
C. Homozygous dominant
D. Homozygous recessive (cc)

Q.916 Your neighbor has a flower garden in which there are red flowers and white flowers. These flowers are diploid organisms, and flower color is an autosomal trait. The gene for red flowers (R) is dominant, while the gene for white flowers (r) is recessive. Which of the following could be the genotype of a red flower?
A. Rr
B. RR, Rr, or rr
C. rr
D. RR or Rr

Q.917 A scientist has discovered a new species of flower in which purple coloration is dominant to white. He wishes to know the genotype of a specific purple flower. Which of the following crosses would give him a definitive answer for the purple flower genotype?
A. Unknown purple × homozygous purple
B. Unknown purple × white
C. Unknown purple × unknown purple
D. None of these

Q.918 In nature, garden pea is which of the following?
A. Cross fertilized
B. Cross pollinated
C. Self-fertilized
D. None of These

Q.919 Which of the following characters of pea plant is dominant?
A. Yellow pods
B. White flowers
C. Wrinkled seeds
D. Axial flowers

Q.920 Which of the following is monohybrid cross?
A. TTYy × Ttyy
B. TT × tt
C. Both A and
B D. None of these

Q.921 During test cross, if all off springs are phenotypically dominant then parents are?
A. Heterozygous
B. One homozygous other heterozygous
C. Homozygous
D. None of these

Q.922 A pure breeding tall plant was crossed with dwarf plant. What would be probability of "Tt" genotype in F_2?
A. 0.25
B. 0.5
C. Both A & B
D. None of these

Q.923 Round shaped pea seed is crossed with wrinkled shaped seed. This refers to:
A. P1 generation
B. F1 generation
C. F2 generation
D. F3 generation

Q.924 Number of gametes produced by an organism having genotype of RrPp:
A. 2
B. 3
C. 4
D. 5

Q.925 What would be the color of flowers in F1 generation when a 4'O clock plant having red colored flower is crossed with plant having white colored flower:
A. Half purple and half red
B. Half white and half red
C. All purple
D. All white

Q.926 Mendel's law of inheritance were presented in:
A. 1861
B. 1865
C. 1892
D. 1857

Q.927 Mendel studied seven pairs of traits of pea plant that were present on ___________ chromosomes.
A. 4
B. 7
C. 8
D. 9

Q.928 True breeding variety is produced by which of the following?
A. Cross fertilization
B. Self-fertilization
C. Both A and B
D. None of the above

Q.929 A pea plant with yellow seed was crossed to a plant having green seeds. What will happen in F1 if plants are true breeding?
A. Half seeds will be yellow
B. All seeds will be green
C. Both will be present in ration of 1:2:1
D. All seeds will be yellow

Q.930 How many gametes are produced from genes of diploid organism which is heterozygous for 4 loci?
A. 4
B. 8
C. 12
D. 32

Q.931 Mendel laid the foundation of:
A. Classical genetics
B. Modern genetics
C. Cell biology
D. Neo-Darwinism

Multiple alleles

Q.932 ABO system has different phenotype on the basis of specific ________ on the surface of RBCs

A. Antibody
B. Antigen
C. Anti A-antigen
D. Anti O-antigen

Q.933 ABO blood group system was discovered in:

A. 1811
B. 1901
C. 1801
D. 1911

Q.934 A man with type A blood and a woman with type AB+ blood have a child. Which blood type is impossible for that child to have?

A. A-
B. B-
C. AB+
D. O-

Q.935 ABO blood group system was first introduced by:

A. Landsteiner
B. Bernstein
C. Morgan
D. Fleming

Q.936 ABO has how many phenotypes?

A. 3
B. 4
C. 6
D. 8

Q.937 A man with type AB blood marries a woman with type A blood. Which of the following blood types might their sons inherit?

A. Type A only
B. Type B only
C. Type AH only
D. Type A, type B, or type AB

Q.938 Assume that blood type is not a sex-linked trait. A mother with genotype "A/O" and a father with genotype "A/B" could not have a child with which blood type?

A. A
B. B
C. AB
D. O

Q.939 Assuming that blood type is not a sex-linked trait, what is the probability that a mother with genotype "A/O" and a father with genotype "A/B" will have a child with type B blood?

A. 50%
B. 25%
C. 75%
D. None of these

Q.940 A man with blood group A marries a woman of blood group "B". Both are heterozygous. What is the offspring's having phenotype" O"

A. 10%
B. 25%
C. 50%
D. 75%

Q.941 Rh blood group system is:

A. Multiple allele
B. Polygenic
C. Both A and B
D. None

Q.942 If father have blood group A and mother have blood group B then children can have:

A. A only
B. AB only
C. B only
D. A, B, AB, O all

Gene linkages and crossing over

Q.943 The number of linkage groups in humans is?

A. 24
B. 23
C. 1/23
D. 1/24

Q.944 Genes of same chromosomes are:

A. Linked
B. Non-linked
C. Always assort independently
D. Both B and C

Q.945 Crossing over brings about:

A. Recombinant genes
B. New traits in species
C. Genetic recombination
D. New species

Sex linkages in Drosophila

Q.946 In Morgan's experiment when males and females of Fl generation mate with each other and produce F2 generation. The number of red eyed males were:

A. 2059
B. 2459
C. 782
D. 1101

Q.947 Colored eyes in male *Drosophila* is due to:

A. Hemizygous
B. Homozygous
C. Heterozygous
D. None

Sex linkage in human (Genetics of hemophilia)

Q.948 A trait determines by a gene on the X chromosome is said to be:
A. Pseudoautosomal
B. Sex linked
C. Both A & B
D. None of the above

Q.949 Haemophilia B is due to abnormality of factor?
A.VIII
B. X
C. IX
D. XI

Q.950 Which of the following is not sex-linked recessive trait?
A. Testicular feminization syndrome
B. Color blindness
C. Haemophilia
D. Hypophosphatemic rickets

Q.951 When a hemophilia carrier woman marries a normal man, who among her offspring may be affected?
A. All her children
B. Half of her daughters
C. All her daughters
D. Half of her sons

Q.952 Which traits cannot pass from father to all of his sons?
A. Sex-linked recessive
B. Autosomal
C. Y linked
D. None of theses

Q.953 It is a autosomal recessive allele:
A. Hemophilia a
B. Hemophilia b
C. Hemophilia c
D. Red monochromacy

Q.954 Hemophilia is:
A. Mendelian disorder
B. Chromosomal disorder
C. Both A and B
D. None of above

Q.955 Traits passed form maternal grandfather to grandson:
A. X-linked dominant
B. Y-linked
C. Autosomal
D. X-linked recessive

Q.956 Which of the following is inherited via an autosomal recessive allele?
A. Hemophilia
B. Huntington's disease
C. Color-blindness
D. Cystic fibrosis

Q.957 For a single gene trait, a number of genetic disorders are caused when an individual inherits?
A. Two dominant alleles
B. One dominant allele
C. One recessive allele
D. Two recessive alleles

Q.958 Which trait is passed directly from father to son?
A. Y linked
B. X linked
C. X linked dominant
D. X linked recessive

Q.959 Chances for a birth of male and female in humans:
A. 1:2
B. 1:1
C. 2:1
D. 2:2

Q.960 A gamete without sex gamete is called:
A. Male gamete
B. Nullo gamete
C. Advanced gamete
D. None

Q.961 Genes of baldness can express only in the presence of hormone:
A. Progesterone
B. Estrogen
C. Aldosterone
D. LH

Q.962 Defective genes are present on X chromosome. It will normally be transmitted in male off springs by:
A. Father
B. Mother
C. Segregation
D. Mutation

Q.963 A single ovum of human being contains:
A. X chromosome
B. XX chromosome
C. Y chromosome
D. May be all

Q.964 How many sex chromosomes are present in human?
A. 2
B. 3
C. 1
D. 4

Out of Syllabus

Q.965 Which of the following is male determining gene in humans?
A. Tfm
B. SRY
C. Both A and B
D. None of these

Q.966 Number of chromosomes in grass hopper is:
A. Male: 23, Female: 24   B. Male: 24, Female: 23
C. Male: 23, Female: 23   D. Male: 24, Female: 24

Q.967 Male is haploid in:
A. Humans   B. Drosophila
C. Birds   D. Grasshopper

Q.968 ZZ/ZW type of sex determination is found in:
A. Humans   B. Fruit fly
C. Moths   D. Grasshopper

Q.969 Number of autosomes in liver cells of humans:
A. 44   B. 23
C. 22   D. 46

Q.970 In males, the gene for colour blindness is located in _________.
A. X-chromosome   B. Y-chromosome
C. Both X and Y chromosomes   D. Either X or Y chromosome

Q.971 Which of the following is called the sex-linked disease?
A. Leukemia   B. Alzheimer’s
C. Malignancy   D. Colour blindness

Q.972 How many sex chromosomes are present in a human being?
A. 1 pair   B. 2 pairs
C. 3 pairs   D. 4 pairs

Q.973 Skin colour in man is controlled by how many pairs of genes:
A. 1   B. 2
C. 3   D.

Q.974 Inheritance in man is traced by which of the following?
A. Mathematical method   B. Statistical method
C. Genetic method   D. Pedigree method

Q.975 In which organisms males are haploid?
A. Aphids   B. Mosquito
C. Butterfly   D. Honey bee

Q.976 Visible genetic traits include which of the following?
A. Hair color   B. Eye color
C. Number of limbs   D. All of these

Q.977 All of the following are continuously varying traits except:
A. Kernel color in wheat   B. Skin color in humans
C. Height in humans   D. Tongue rolling in humans

Q.978 Gene for blue opsin is present on which chromosome?
A. 6   B. 7
C. 8   D. 11

Q.979 A woman is a carrier for a sex-linked disorder. She marries a man whose father had the disorder, and whose mother did not. The man is unaffected. If they have a child, what is the probability that the child is also a carrier?
A. 25%   B. 50%
C. 75%   D. 1%

Q.980 Red-green colorblindness is an X-linked recessive disorder. Jacob's paternal grandfather and father are both colorblind, but his mother has two normal alleles. What is the probability that Jacob is red-green colorblind?
A. 0%   B. 25%
C. 50%   D. 75%

Q.981 Bombay phenotype shows:
A. Dominance   B. Pleiotropy
C. Epistasis   D. Polygenic inheritance

Q.982 In males, gene for color blindness is present on:
A. Y chromosome   B. Autosome 11
C. X chromosome   D. Autosome 1

Q.983 The phenomenon in which the effect of one allele in heterozygous genotype completely masks the effect of other is called:
A. Codominance   B. Dominance
C. Incomplete dominance   D. Complete dominance

Q.984 Inbreeding increases:
A. Heterozygous
B. Genetic diversity
C. Genetic linkage
D. Homozygous

Q.985 Interaction between genes occupying different loci is known as?
A. Dominance
B. Pleiotropy
C. Epistasis
D. None of these

Q.986 Baldness is most frequent in which of the following?
A. Men
B. Women
C. Both A and B
D. Children

Q.987 Such inheritance in which traits vary quantitatively is:
A. Continuously varying trait
B. Incomplete dominance
C. Test cross
D. Test cross

Q.988 If a heterozygous individual shows the complete effect of both alleles, the type of inheritance would be?
A. Complete dominance
B. Non dominance
C. Incomplete dominance
D. Codominance

Q.989 A human cell from the ovary has 22 chromosomes and an X chromosome. It is which of the following?
A. Egg
B. Sperm
C. Somatic cell
D. Gamete

Q.990 The ordered list of loci known for a particular genome is called:
A. Gene map
B. Loci
C. Alleles
D. Chromosomes

Q.991 Characteristics feature of male Drosophila is:
A. Sex combs on back legs
B. Sex combs on front legs
C. Sex combs on middle legs
D. None of them

Q.992 Mutations in the sequence of genes are carried by only:
A. Locus
B. Population
C. Allele
D. Genetic sequence

Q.993 Most protein coding genes are found in:
A. Repetitive DNA
B. RNA
C. Single copy DNA
D. None of these

Q.994 A woman receives his X chromosome from:
A. His mother only
B. Both her mother and her father
C. His father only
D. Extra nuclear DNA in her mother's egg

Q.995 If replication was completely conservative then?
A. One heavy and one light strand would be seen
B. Both heavy strands would be seen
C. Both light strands would be seen
D. None of these

Q.996 All of the following are continuously varying traits except?
A. Kernel colour in wheat
B. Skin colour in humans
C. Height in human
D. Tongue rolling in humans

Q.997 Mating between relatives is called which of the following?
A. Ex breeding
B. Breeding
C. Inbreeding
D. Outbreeding

Q.998 Mating with non-relatives is known as?
A. Inbreeding
B. Breeding
C. Outbreeding
D. None of these

Q.999 The gene for muscular dystrophy is X-linked. A female carrier and an unaffected male have one daughter together that is homozygous. The daughter has a son with unaffected male. What is the probability that the son will not be affected?
A. 25%
B. 50%
C. 75%
D. 0

Q.1000 Gametes consist of:
A. Two alleles
B. Only one allele of gene
C. No allele
D. None of these

Q.1001 A male and female have 6 daughters. Chances of next daughter will be:

A. 10
B. 60
C. 50
D. 100

Q.1002 Egg is determinant of offspring's gender in:

A. Man
B. Drosophila
C. Grasshopper
D. Butterfly

Basic Definition

Q.1003 If both the alleles are same with respect to genes then they are called:

A. Heterozygous
B. Unicellular
C. Homozygous
D. None of these

Q.1004 The process of determining the locus for particular biological traits includes:

A. Replication
B. Recombination
C. Gene Mapping
D. None

Q.1005 The set of all genes in any population is termed as:

A. Population pool
B. Species pool
C. Gene pool
D. All of these

Q.1006 A fully expressed allele is referred to as:

A. Dominant
B. Recessive
C. Homozygous
D. Heterozygous

Q.1007 A group of interbreeding individuals belonging to a particular species and sharing a common geographic area is called:

A. Community
B. Population
C. Race
D. Family

Q.1008 Filial is a Latin word. It means which of the following?

A. Spring
B. Issue
C. Progeny
D. None of these

Q.1009 Pink color in flower is:

A. Phenotype
B. Genome
C. Genotype
D. Trait

Q.1010 Alternative form of a gene is called:

A. Genome
B. Gene pool
C. Allele
D. Genetics

Q.1011 The position of a gene on chromosome is called:

A. Locus
B. Arm
C. Position
D. Location

Q.1012 The gene which cannot be determined by observing the organism is?

A. Dominant
B. Allele
C. Phenotype
D. Recessive

Q.1013 Which term means "same alleles"?

A. Heterozygous
B. Hybrid
C. Homozygous
D. None of them

Q.1014 Chromosomes that have different alleles of a given gene at locus is called:

A. Homozygous
B. Specialization
C. Y chromosomes
D. Heterozygous

Q.1015 To form a female zygote, the sperm cell must contribute which chromosome?

A. X
B. 2X
C. Y
D. XY

Q.1016 Gene is the molecular unit of which of the following?

A. DNA
B. RNA
C. Heredity
D. Genotype

Q.1017 Organisms that have one copy of each gene on each chromosome are:

A. Haploid
B. Diploid
C. Unicellular
D. None of these

Q.1018 Population genetics focus on:

A. Inherited traits
B. Qualitative traits
C. Quantitative traits
D. All of these

SKN

ANSWER KEYS

Q	A	Q	A	Q	A	Q	A	Q	A	Q	A	Q	A	Q	A	Q	A	Q	A
1	D	61	C	121	C	181	C	241	B	301	C	361	B	421	B	481	C	541	C
2	D	62	C	122	B	182	D	242	B	302	B	362	C	422	B	482	C	542	B
3	A	63	A	123	A	183	B	243	D	303	D	363	D	423	A	483	C	543	B
4	B	64	D	124	D	184	A	244	C	304	B	364	D	424	B	484	A	544	C
5	C	65	C	125	A	185	B	245	A	305	B	365	C	425	A	485	B	545	C
6	C	66	C	126	C	186	D	246	D	306	B	366	D	426	C	486	C	546	B
7	C	67	C	127	B	187	D	247	C	307	C	367	B	427	B	487	B	547	A
8	D	68	B	128	C	188	D	248	D	308	A	368	A	428	B	488	C	548	C
9	C	69	D	129	B	189	B	249	B	309	C	369	C	429	C	489	B	549	A
10	B	70	A	130	B	190	A	250	D	310	C	370	B	430	B	490	D	550	C
11	B	71	A	131	B	191	B	251	B	311	A	371	C	431	C	491	A	551	D
12	D	72	D	132	D	192	B	252	B	312	B	372	C	432	C	492	A	552	A
13	A	73	D	133	D	193	C	253	D	313	D	373	B	433	C	493	C	553	B
14	D	74	C	134	B	194	B	254	C	314	D	374	B	434	B	494	C	554	A
15	B	75	B	135	C	195	C	255	A	315	B	375	B	435	C	495	C	555	B
16	B	76	D	136	D	196	D	256	A	316	C	376	B	436	C	496	C	556	C
17	C	77	D	137	B	197	C	257	B	317	A	377	B	437	A	497	D	557	A
18	B	78	C	138	D	198	A	258	C	318	A	378	C	438	A	498	B	558	C
19	C	79	A	139	A	199	C	259	A	319	B	379	D	439	C	499	D	559	A
20	C	80	D	140	B	200	B	260	D	320	C	380	C	440	B	500	B	560	D
21	B	81	B	141	A	201	B	261	C	321	A	381	C	441	B	501	D	561	C
22	D	82	D	142	A	202	B	262	A	322	D	382	A	442	A	502	B	562	C
23	A	83	B	143	D	203	A	263	A	323	D	383	C	443	C	503	D	563	B
24	D	84	C	144	D	204	A	264	A	324	B	384	A	444	D	504	C	564	A
25	B	85	B	145	D	205	B	265	D	325	D	385	D	445	A	505	D	565	C
26	B	86	D	146	D	206	C	266	A	326	C	386	A	446	C	506	C	566	D
27	B	87	C	147	C	207	A	267	B	327	A	387	D	447	B	507	D	567	A
28	B	88	C	148	B	208	C	268	B	328	B	388	C	448	D	508	D	568	D
29	C	89	B	149	C	209	B	269	A	329	A	389	C	449	A	509	C	569	A
30	A	90	C	150	A	210	D	270	D	330	D	390	B	450	B	510	C	570	B
31	D	91	D	151	A	211	D	271	B	331	C	391	B	451	B	511	C	571	A
32	B	92	A	152	D	212	C	272	D	332	A	392	C	452	B	512	A	572	D
33	D	93	D	153	B	213	A	273	A	333	C	393	D	453	D	513	D	573	C
34	C	94	B	154	B	214	A	274	A	334	D	394	C	454	B	514	D	574	C
35	B	95	C	155	D	215	C	275	A	335	D	395	B	455	D	515	B	575	C
36	B	96	A	156	B	216	C	276	D	336	D	396	C	456	D	516	C	576	A
37	C	97	B	157	D	217	C	277	A	337	D	397	D	457	D	517	B	577	E
38	D	98	C	158	D	218	C	278	C	338	C	398	A	458	A	518	A	578	C
39	A	99	B	159	D	219	C	279	B	339	D	399	C	459	D	519	A	579	B
40	D	100	C	160	D	220	D	280	A	340	B	400	C	460	B	520	D	580	C
41	D	101	A	161	A	221	B	281	B	341	C	401	A	461	C	521	A	581	C
42	C	102	C	162	B	222	D	282	D	342	D	402	C	462	D	522	A	582	A
43	D	103	B	163	A	223	C	283	A	343	C	403	C	463	D	523	C	583	C
44	C	104	B	164	C	224	D	284	D	344	B	404	A	464	B	524	A	584	E
45	B	105	D	165	A	225	C	285	D	345	B	405	C	465	D	525	C	585	D
46	A	106	D	166	B	226	D	286	B	346	D	406	B	466	C	526	D	586	A
47	A	107	A	167	C	227	A	287	C	347	B	407	A	467	D	527	B	587	B
48	C	108	B	168	B	228	C	288	B	348	C	408	C	468	C	528	D	588	B
49	A	109	C	169	C	229	D	289	D	349	A	409	A	469	B	529	A	589	-
50	B	110	B	170	C	230	C	290	D	350	A	410	C	470	D	530	D	590	E
51	B	111	D	171	C	231	D	291	A	351	D	411	B	471	B	531	A	591	
52	C	112	B	172	D	232	D	292	B	352	D	412	D	472	D	532	A	592	A
53	D	113	B	173	C	233	C	293	A	353	B	413	C	473	D	533	B	593	C
54	B	114	A	174	B	234	A	294	D	354	A	414	D	474	D	534	A	594	
55	C	115	A	175	B	235	B	295	C	355	A	415	B	475	A	535	A	595	D
56	A	116	C	176	B	236	B	296	A	356	C	416	C	476	D	536	B	596	B
57	C	117	A	177	A	237	B	297	A	357	B	417	C	477	B	537	A	597	A
58	C	118	B	178	D	238	D	298	D	358	D	418	B	478	D	538	A	598	D
59	A	119	C	179	C	239	B	299	B	359	D	419	A	479	B	539	A	599	
60	B	120	A	180	B	240	A	300	D	360	B	420	D	480	C	540	A	600	D

601	C	661	B	721	A	781	B	841	C	901	C	961	D
602	B	662	D	722	D	782	D	842	B	902	D	962	B
603	A	663	C	723	B	783	C	843	D	903	A	963	A
604	D	664	D	724	D	784	A	844	B	904	A	964	A
605	C	665	A	725	A	785	B	845	D	905	D	965	B
606	B	666	B	726	C	786	A	846	D	906	B	966	A
607	B	667	B	727	A	787	D	847	C	907	C	967	D
608	A	668	D	728	D	788	C	848	A	908	D	968	C
609	B	669	D	729	C	789	C	849	A	909	B	969	C
610	C	670	D	730	B	790	C	850	D	910	D	970	A
611	A	671	D	731	D	791	D	851	B	911	D	971	D
612	A	672	C	732	D	792	D	852	C	912	A	972	A
613	A	673	B	733	A	793	B	853	D	913	A	973	C
614	D	674	C	734	C	794	B	854	B	914	A	974	D
615	D	675	A	735	A	795	D	855	D	915	D	975	D
616	C	676	C	736	D	796	C	856	B	916	D	976	D
617	C	677	B	737	B	797	C	857	C	917	D	977	D
618	A	678	A	738	B	798	D	858	C	918	C	978	B
619	D	679	C	739	D	799	B	859	A	919	D	979	A
620	D	680	D	740	C	800	D	860	D	920	B	980	A
621	D	681	B	741	C	801	D	861	D	921	C	981	C
622	D	682	B	742	D	802	B	862	D	922	B	982	C
623	D	683	A	743	B	803	C	863	B	923	A	983	D
624	A	684	C	744	B	804	C	864	C	924	C	984	D
625	C	685	A	745	B	805	A	865	D	925	C	985	C
626	B	686	B	746	B	806	B	866	D	926	B	986	A
627	C	687	B	747	A	807	D	867	B	927	A	987	A
628	A	688	D	748	A	808	C	868	A	928	B	988	D
629	C	689	B	749	D	809	D	869	D	929	D	989	A
630	B	690	A	750	D	810	B	870	D	930	D	990	A
631	B	691	C	751	A	811	A	871	D	931	A	991	B
632	B	692	D	752	B	812	B	872	A	932	B	992	D
633	D	693	C	753	A	813	C	873	B	933	B	993	C
634	A	694	B	754	A	814	D	874	A	934	D	994	B
635	B	695	B	755	A	815	C	875	D	935	A	995	D
636	C	696	B	756	B	816	D	876	B	936	B	996	D
637	D	697	B	757	B	817	B	877	B	937	D	997	C
638	C	698	D	758	C	818	C	878	A	938	D	998	C
639	C	699	C	759	D	819	B	879	A	939	B	999	D
640	C	700	C	760	C	820	D	880	C	940	B	1000	B
641	B	701	C	761	D	821	A	881	B	941	A	1001	C
642	C	702	C	762	A	822	B	882	B	942	D	1002	D
643	C	703	B	763	D	823	B	883	A	943	B	1003	C
644	C	704	D	764	D	824	C	884	A	944	A	1004	C
645	D	705	D	765	C	825	D	885	B	945	C	1005	C
646	B	706	C	766	C	826	B	886	B	946	D	1006	A
647	C	707	C	767	C	827	D	887	B	947	A	1007	B
648	A	708	A	768	C	828	C	888	D	948	B	1008	C
649	C	709	D	769	D	829	C	889	D	949	C	1009	A
650	C	710	D	770	B	830	B	890	A	950	D	1010	C
651	C	711	D	771	B	831	B	891	B	951	D	1011	A
652	C	712	D	772	B	832	B	892	A	952	A	1012	D
653	B	713	D	773	C	833	A	893	D	953	C	1013	C
654	B	714	A	774	A	834	C	894	A	954	A	1014	D
655	B	715	C	775	A	835	A	895	B	955	D	1015	A
656	D	716	D	776	D	836	C	896	B	956	D	1016	C
657	D	717	C	777	D	837	A	897	A	957	D	1017	A
658	D	718	B	778	A	838	D	898	C	958	A	1018	A
659	B	719	C	779	D	839	C	899	D	959	B	1019	
660	C	720	B	780	B	840	A	900	C	960	B	1020	